

**Mathematics Assessment
Summary Report
2002-2003**

Assessment Method I – CAAP Mathematics Test

The CAAP Mathematics Test and Scoring

The CAAP Mathematics Test is a 35-item (timed at 40 minutes) test that measures mathematical reasoning. It emphasizes quantitative reasoning rather than the memorization of formulas and focuses on the kinds of mathematical problems that students are likely to encounter in the varied college curricula. The content areas tested include prealgebra; elementary, intermediate, and advanced algebra; coordinate geometry; and trigonometry.

The CAAP Mathematics Test is a multiple-choice measure. For the total test score, standard scores are reported with a range from 40 (low) to 80 (high). The mean is 60 and the standard deviation is approximately 5. For the subtests, scores are reported on a range of 5 (low) to 25 (high). Three scores are reported for the CAAP Mathematics Test:

- i. Total Score (35 items)
- ii. Basic Algebra Subscore (17 items)
Composed of test questions from the prealgebra, elementary algebra, intermediate algebra, and coordinate geometry content areas
- iii. College Algebra Subscore (18 items)
Composed of test questions from the college algebra and trigonometry areas

For more information on the CAAP Mathematics Test visit the CAAP website:

<http://www.act.org/caap/tests/math.html>

Sample

The following chart outlines some demographic information on the sample of 133 Mercer students. Included are the student counts in each category and the average CAAP Mathematics Test score (total).

Category		Student Count	Average Total Score
Ethnicity	African Amer./Black	24	56
	Caucasian/White	82	60
Gender	Male	54	60
	Female	79	58
Age	18 and under	16	62
	19-20	44	61
	21-25	32	58
	26-30	14	56
	31-39	19	56
	40 and older	8	55
	When entered Mercer	Entered as freshman	89
Transfer		44	56
Education level	Freshman	46	61
	Sophomore	38	58
	Junior	24	57
	Senior	24	57
Cumulative GPA	Below 2.00	8	61
	2.01-2.50	17	60
	2.51-3.00	26	59
	3.01-3.50	42	58
	3.51 and above	39	59
College Major	Undecided	11	63
	Business	50	58
	Community Services	7	57
	Computer & Info Sci	9	57
	Education	13	57
	Engineering	14	63
	Health Professions	12	58
	Physical Sciences	4	63

Self-reported Performance Effort

Students responded to an item that reflected the effort the student put into this assessment activity. The responses ranged from “tried my best” to “gave no effort”. The number in parentheses reflects the average total score of each group.

<	Tried by Best	55 students	(60)
<	Gave Moderate Effort	50 students	(59)
<	Gave Little Effort	22 students	(57)
<	Gave No Effort	0 students	
<	No response	6 students	(58)

Results

The national sample for the CAAP Mathematics Test numbered 4,107. The mean total score was 58.3 with a standard deviation of 3.9. The Mercer sample numbered 133 with a mean total score of 58.7 and a standard deviation of 3.9. The Mercer mean scores almost paralleled those of the national sample for the total and subtests. The following table outlines all of these figures.

CAAP Mathematics Test			
Means and Standard Deviations for National and Mercer Samples			
	Total Test	Basic Algebra Subtest	College Algebra Subtest
National (N = 4107)	Mean = 58.3 S.D. = 3.9	Mean = 15.4 S.D. = 2.4	Mean = 15.3 S.D. = 2.6
Mercer (n = 133)	Mean = 58.7 S.D. = 3.9	Mean = 15.8 S.D. = 3.9	Mean = 15.6 S.D. = 2.8

The desired level of performance that was to demonstrate achievement of the outcome was reported in the assessment plan. It was expected that 70% of the students assessed would score above the 50th percentile when compared to national norms.

The results revealed that for the Total Math Score 79 students or 59.4% of the Mercer sample population scored above the 50th percentile. On the Basic Algebra Subtest 75 students or 56.4% of the Mercer sample population scored above the 50th percentile. The College Algebra Subtest showed 76 students or 57.1% of the Mercer sample population scored above the 50th percentile. The expected outcome was not met.

Conclusions

It appears that the scores of Mercer students on the CAAP Mathematics Test are in line with students in the national sample. Mercer students do not far outperform these other students. The outcome that suggests that 70% of the Mercer students would score above the 50th percentile of the national group was not realized.

It must be noted that this is the first time that Mercer has used the CAAP Test for its overall general education assessment program. Admittedly, there is a struggle to determine the best dimensions for the assessment plan – Is it best to test fall or spring term? What math courses should be included in the sample?

The primary recommendation is that the CAAP Mathematics Test be given in the next academic year (2003-2004). An effort should be made to be inclusive of all appropriate math offerings. This would add MAT 104, MATH 120, and MATH 160. Also, administering to the correct proportion of students to better reflect the proportion of students enrolled in the courses should be attempted along with assuring that there are proper “n” sizes.

Assessment Method II – Graduation Survey 2002-2003

Graduation Survey 2002-2003 and Scoring

The Graduation Survey is a local measure designed to assess (1) student perceptions of personal growth/development in both academic and personal areas and (2) general levels of student satisfaction. All undergraduate graduating seniors on the Macon campus and in the Regional Academic Centers (RAC) complete the survey electronically as part of their graduation application. Currently, the measure is not available to undergraduate students on the Atlanta campus (Nursing, Business).

Various items on the Graduation Survey use a three-, four-, or five-point Likert scale. The specific items included as part of this investigation use a three-point scale (1 = very much, 2 = somewhat, 3 = very little). Mean scores are determined for each item for both Macon students and RAC students.

Sample

A total of 515 Macon graduating seniors enrolled in the College of Liberal Arts, Stetson School of Business and Economics, School of Engineering, and the Tift College of Education completed the survey (not all completed every item of the survey). The sample was distributed as follows:

CLA	242
SSBE	141
EDU	29

EGR 103
Total Macon 515

A total of 455 graduating seniors completing their degrees at the Regional Academic Centers completed the survey. These students are enrolled in the Stetson School of Business and Economics, the Tift College of Education and the College of Continuing and Professional Studies (including Organizational Leadership). The following represents the sample distribution. It must be noted that CCPS was extracted from the Tift College in January 2003. Graduating seniors in these colleges were able to choose either college as the degree grantor. Therefore, the number of Tift students also includes some students completing degrees outside of education.

SSBE 59
 EDU 195
 CCPS 102
 OL (CCPS) 99
Total Centers 455

Results

It was expected that graduating seniors would indicate that their educational experience at Mercer “very much” or “somewhat” contributed to their personal growth in solving quantitative problems. This would be evidenced by mean scores of 1.50 or below on the Graduation Survey. The results appear below:

Mean Scores of Colleges/Schools in Macon and in the Regional Academic Centers on item: “Educational Experience at Mercer Contributed to Personal Growth/Development in Solving Quantitative Problems”									
Macon CLA	Macon SSBE	Macon EGR	Macon EDU	Macon Total	RAC SSBE	RAC EDU	RAC CCPS	RAC OL (CCPS)	RAC Total
1.81	1.47	1.25	1.92	1.63	1.37	1.58	1.63	1.78	1.61

Conclusions

Neither graduating seniors on the Macon campus nor those in the Regional Academic Centers believe that their educational experience at Mercer contributed to their ability to solve quantitative problems. The expected mean score (1.50 or below) was not reached for Macon campus students (1.63), nor for students in the Regional Academic Centers (1.61). The math requirement for the students’ academic programs may influence these results. Engineering students believed that their educational experience at Mercer impacted their ability to solve quantitative problems, as did business students in the Regional Academic Centers. The Engineering School and Stetson School of Business and Economics have the highest across-

school math requirements of all the colleges and schools.

Recommendations/Use of Results for the Mathematics Assessment

It is recommended that this outcome be assessed again in 2003-2004. The assessment of this outcome will be made more robust as the following are considered:

CAAP Mathematics Test:

- Larger samples from each College and School (at least 25 per)
- Larger samples from each math course (at least 25 per)
- Add samples from MAT 104, MATH 120, and MATH 160
- Collect data at the end of term Fall 2003
- Preferably collect data during last class period

Graduation Survey:

- Inclusion of students on the Atlanta campus (Nursing, SSBE)

Following the assessment of mathematics in 2002-2003 the following has occurred:

- The re-establishment of an undergraduate curriculum committee
- Begin process for changing the requirements for the BBA which will disallow grades of D for statistics, math courses, or BUS 350
- SSBE to consider changing the admission criteria to include a minimum math SAT score or higher grades in completed math courses