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THE AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS
COLLEGE ACCOUNTING TESTING PROGRAM

Bulletin No. 36

RESULTS OF THE
SPRING, 1959, COLLEGE ACCOUNTING TESTING PROGRAM

Including a Supplementary Research Report

Prepared by
Committee on Personnel Testing
21 Audubon Avenue
New York 32, N. Y.

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THE AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS
COLLEGE ACCOUNTING TESTING PROGRAM

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INSTITUTIONS PARTICIPATING IN 1959 SPRING PROGRAM

Adams State College	Elizabethtown College
Adelphi College	Evansville College
A & M College of Texas	Fairfield University
University of Akron	Fairleigh Dickinson University
Alabama State College at Florence	Fenn College
University of Alabama	Flint College
American Institute of Business	Flint Junior Community College
Anderson College	Florida Southern College
Arkansas State College	Franklin and Marshall College
Ashland College	Gallaudet College
Assumption University of Windsor	Gannon College
Atlantic Christian College	Gates College
Aurora College	General Beadle State Teachers College
Austin Peay State College	Globe Business College
Ball State Teachers College	Golden Gate College
University of Baltimore	Grand Rapids Junior College
Bay City Junior College	Greenville College
Bellarmino College	Hamilton College
Beloit College	Hampton Institute
Bentley School of Accounting & Finance	Hanover College
Bismarck Junior College	Harding College
Bradley University	Harpur College
Bridgewater College	Rastings College
Brigham Young University	Heald's Business College
Brooklyn College	Heidelberg College
Bryant College	Hillyer College
Burdett College	Hofstra College
Cades Business School	College of the Holy Cross
University of California, Los Angeles	Hope College
Calvin College	Humboldt State College
Canisius College	College of Idaho
Carroll College	Idaho State College
Catawba College	Immaculata College
Centenary College of Louisiana	Indiana State Teachers College (Ind.)
Central Michigan College	Indiana State Teachers College (Penna.)
Centre College of Kentucky	Interamerican University
Chaffey College	Iona College
Champlain College	Iowa State Teachers College
University of Chattanooga	State University of Iowa
Clark College	Ithaca College
Colorado College	Jackson Junior College
Colorado State College	Jacksonville University
Concord College	Jamestown College
Dana College	University of Kentucky
Dartmouth College	King's College
Davenport Institute	Lamar State College of Technology
David Lipscomb College	La Verne College
De Paul University	Lawrence College
De Pauw University	Lebanon Valley College
Detroit Institute of Technology	Lee College
University of Detroit	Lehigh University
Dickinson College	LeMoyne College
Drexel Institute of Technology	Lincoln University
Duquesne University	Livingston State College
East Carolina College	University of Louisville
Eastern College of Commerce & Law	Loyola College
Eastern Washington College of Education	Luther College

Lycoming College
 Manchester College
 Marquette University
 University of Maryland
 University of Massachusetts

 Merrimack College
 Mexico City College
 University of Miami
 Midland College
 Midwest Institute of Business Admin.

 Millikin University
 Millsaps College
 Milton College
 University of Mississippi
 Mornmouth College

 Moravian College
 Morningside College
 Muskingum College
 University of Nevada
 New York State Ag.-Tech. Institute

 New York State College for Teachers
 Niagara University
 University of North Carolina
 North Central College
 Northern State Teachers College

 University of Omaha
 Orange County Community College
 Otero Junior College
 College of the Pacific
 Pacific Union College

 Pacific University
 Parsons College
 Peirce School of Business Admin.
 Pennsylvania Military College
 University of Pennsylvania

 Poplar Bluff Business College
 Portland State College
 Portland University
 Providence College
 Queens College

 Randolph-Macon College
 Regis College (Colorado)
 Regis College (Mass.)
 University of Rhode Island
 Rider College

 Riverside City College
 Rochester Institute of Technology
 University of Rochester
 Roosevelt University
 Rounsaville Business College

 Rutgers University
 St. Ambrose College
 St. Francis College (New York)
 St. Francis College (Penna.)
 St. John Fisher College

 St. John's University (Minnesota)
 St. John's University (New York)
 St. Joseph's College
 St. Martin's College
 St. Mary's University

 St. Michael's College
 St. Norbert College
 St. Vincent College
 Sam Houston State Teachers College
 San Benito College

 San Diego Junior College
 San Diego State College
 City College of San Francisco
 University of San Francisco
 University of Santa Clara

 University of Scranton
 Seton Hall University
 Shasta College
 Siena College
 Silliman University

 University of South Dakota
 South Middlesex Secretarial School
 Southern Illinois University
 Southwestern Louisiana Institute
 Southwestern University

 Spencerian College
 Springfield Junior College
 Spring Hill College
 Stoneshill College
 Strayer College of Accountancy

 Susquehanna University
 Syracuse University
 Taylor University
 Temple University
 University of Tennessee

 Texas Christian University
 Texas College of Arts & Industries
 Texas Lutheran College
 Texas Southern College
 Texas Western College

 Tri-State College
 Union College
 Union Junior College
 Upper Iowa University
 Upsala College

 Villa Madonna College
 Virginia Junior College
 Virginia Polytechnic Institute
 University of Virginia
 Wake Forest College

 Walla Walla College
 Walsh Institute of Accountancy
 Washington & Lee University
 Wayne State University
 West Liberty State College

 West Texas State College
 West Virginia University
 Western Michigan University
 Western State College of Colorado
 Wheaton College

 Wilkes College
 College of William and Mary
 Wisconsin State College
 University of Wisconsin, Milwaukee
 University of Wyoming

INTRODUCTION

A record number of 234 colleges and universities participated in the thirteenth annual spring College Accounting Testing Program, for which the recommended testing period was April 6 to May 9. The number of participating institutions exceeded the 1958 program total by nine per cent, and it surpassed the previous record high of the 1956 spring program by seven per cent. The volume of tests administered this spring, as reported below, was within two per cent of that of the previous spring program.

	<u>1959</u>	<u>1958</u>	<u>1957</u>	<u>1956</u>	<u>1955</u>
Orientation Test	1,113	1,214	1,112	2,215	2,272
Achievement Test, Level I	9,479	9,559	8,660	10,424	7,182
Achievement Test, Level II	2,689	2,729	2,716	2,350	2,041
Strong Interest Blank	<u>117</u>	<u>152</u>	<u>284</u>	<u>318</u>	<u>304</u>
Total	13,398	13,654	12,772	15,307	11,799
No. of Colleges	234	214	217	219	190

Following the pattern of the preceding years, the Level I Achievement Test was the measure that was used in the largest quantity in this spring program. Of the 9,479 Level I tests administered, 4,912, or 52 per cent, were fifty-minute forms, and the balance was two-hour forms. The Level II Achievement Test was again offered in both two-hour and four-hour forms, with the two-hour forms accounting for about 77 per cent of the usage of this test. The Orientation Test, Achievement Tests, and the Strong Vocational Interest Blank were used essentially the same proportions this spring as they were last spring.

Most of the participating institutions used the recommended forms of the tests and administered them to students in accounting classes either on a required or voluntary participation basis. Included in the figures shown above, however, are 273 tests that were administered for special purposes, such as retesting, candidate screening, or high school scholarship awards.

When the participating institutions are classified according to the six categories shown below, those in the two categories of liberal arts colleges and schools of business in universities comprise about 77 per cent of the total, as they did in the 1958 spring program. The number of participating liberal arts colleges increased from 102 last spring to 120 this spring, while the numbers of institutions in the other five categories are quite close to those reported for last year.

<u>Type of College</u>	<u>1959 Spring Program</u>		<u>1958 Spring Program</u>	
	<u>Number</u>	<u>Per Cent</u>	<u>Number</u>	<u>Per Cent</u>
Liberal Arts Colleges	120	51.3	102	47.7
Schools of Business				
in Universities	61	26.0	62	29.0
Business Schools	18	7.7	17	7.9
Junior Colleges	13	5.6	15	7.0
Technical Colleges	13	5.6	11	5.1
Teachers Colleges	<u>9</u>	<u>3.8</u>	<u>7</u>	<u>3.3</u>
Total	234	100.0	214	100.0

The geographical spread of the 234 participating institutions includes all the major regions of the country and extends into three foreign countries as well. As will be observed from the data below, the North Central region led in representation again this year, followed by the Middle Atlantic, South, and West. New England was represented by fifteen institutions, and Canada, Mexico, and the Philippines by one each.

<u>Region</u>	<u>1959 Spring Program</u>		<u>1958 Spring Program</u>	
	<u>Number</u>	<u>Per Cent</u>	<u>Number</u>	<u>Per Cent</u>
New England	15	6.4	14	6.5
Middle Atlantic	55	23.5	51	23.8
North Central	77	33.0	65	30.4
South	50	21.4	49	22.9
West	34	14.5	33	15.4
Canada	1	0.4	1	0.5
Mexico	1	0.4	1	0.5
Philippines	<u>1</u>	<u>0.4</u>	<u>-</u>	<u>-</u>
Total	234	100.0	214	100.0

Again this year, forty-three states were represented in the program. Pennsylvania and New York held their places at the top of the list, with 23 and 19 colleges, respectively. Next in order were California with 16, Michigan with 14, Texas with 13, Illinois with 11, and Indiana and Iowa with 10 each. The other thirty-six states were represented by one to nine colleges each.

In the combined fall, midyear, and spring testing programs of this academic year, 26,344 tests in all were administered. This is two per cent more than the 1957-58 total and very close to the total for the 1956-57 academic year.

Since colleges have shown a sustained interest in the College Accounting Testing Program during the past thirteen years, the Institute's Committee on Personnel Testing, which is in charge of the program, has decided that it will be worthwhile to plan a series of revised editions of the tests to keep them up to date. Work has been started on several forms of the Level II Achievement Test and the Orientation Test, with the expectation that some of these forms will be ready for use next year.

The Committee on Personnel Testing and the Project Office staff will welcome any suggestions or comments on the tests or testing program that the participating institutions may wish to submit.

SUMMARY OF TEST RESULTS

The results of the aptitude and achievement tests that were administered in the 1959 spring program are summarized in the distribution tables on the following pages. In these tables, the program medians are marked by the short, horizontal lines, and the norm medians are designated by the broken lines extending across the distribution columns. The range of the middle half of the scores is indicated by the vertical line adjacent to the column of frequencies in each table.

The statistics at the foot of each distribution column give the number of students tested or the number of participating institutions, the median and range of scores, and, where there are fifteen or more frequencies in the distribution, the quartiles and 10th and 90th percentile points.

Following is a brief verbal summary of the program test results:

Level I Achievement Test, Form A-S. - The first-year students who took the fifty-minute form of the Level I Achievement Test on a "required" basis formed the largest single group tested this spring. As will be seen from Table I, the median score of this group of 3,972 students from 77 colleges is almost identical with the norm median, which is based on the combined results of the 1956-58 spring programs. The medians for the smaller groups of second-year and third-year students who took the test this spring are within a point of each other, and they are slightly below the second-year norm median.

In Table II are shown the distributions of the Level I, Form A-S, scores of 87 first-year students in seven colleges where the test was administered on a voluntary participation basis. The median for this small group is slightly higher than that of the larger group of first-year students tested on a "required" basis, and it exceeds the first-year norm median by about two points.

Level I Achievement Test, Form A. - The medians of both the first-year and second-year groups who took the two-hour Level I, Form A, Achievement Test on a "required" basis are close to the corresponding norm medians (Table III). At the third-year level, the median of the small group of 115 students is approximately nine points above the norm median. It is interesting to find that all seven colleges represented by the third-year students have medians in the upper half of the norms. For the groups tested on a voluntary basis (Table IV), the first-year median is a little more than a point above the norm median, while the second-year median falls between the norm medians for the first and second years.

Level II Achievement Test, Forms B and D. - The Level II Achievement Test results for combined second-year and third-year classes and for seniors are reported in Tables V and VI. On both the four-hour Form B and the two-hour Form D, the medians of all the groups tested this spring are at least as high as the norm medians. For the sizable group of 1,321 seniors who took Form D on a "required" basis, the median is a little more than a point above the norm median.

The Form D results for the combined second-year and third-year group tested on a voluntary basis are especially favorable. Almost two-thirds of the 69 students in this group have scores above the 50th percentile.

Orientation Test, Form A. - The Orientation Test was administered to 593 first-year students on a "required" basis, and to 143 first-year students on a voluntary participation basis this spring. The distributions of the verbal, quantitative, and total scores for these groups are shown in Tables VII and VIII. On the total score scale of the test, the two groups have medians that are almost up to the norm medians. In the "required" group, the verbal median is slightly more favorable than the quantitative median, while the reverse is true for the "voluntary" group.

The general picture presented by these test results is that the median levels of aptitude and achievement of the larger groups tested this spring on a "required" participation basis are quite similar to those of the comparable groups tested in recent spring programs. The medians are somewhat high, however, in the instances of the third-year group on the Level I, Form A, Achievement Test and the combined second-year and third-year group on the Level II, Form D, Achievement Test. A rather low median was noted in the case of the small group of third-year students who took the Level I, Form A-S, Achievement Test. The principal differences between the medians of the groups tested on a "required" basis and those tested on a "voluntary" basis occur on the Level II, Form D, Achievement Test, where the combined second-year and third-year "voluntary" group has a relatively high median, and on the Level I, Form A, Achievement Test, where the second-year "voluntary" group has a median about seven points below that of the corresponding "required" group.

Each participating institution is entitled to receive a confidential copy of this bulletin, marked to show the placement of its medians in the distribution of medians.

TABLE I

DISTRIBUTIONS OF SCORES AND COLLEGE MEDIANS ON ACHIEVEMENT TEST, LEVEL I,
FORM A-S, IN CLASSES WHERE THE TEST WAS REQUIRED OR WHERE
90 PER CENT OR MORE TOOK IT ON A VOLUNTARY BASIS

Score	FIRST YEAR		SECOND YEAR		THIRD YEAR	
	Scores of Individuals	Medians of Colleges	Scores of Individuals	Medians of Colleges	Scores of Individuals	Medians of Colleges
60	3		3			
58	4		4		3	
56	18		12		3	
54	25		19		1	
52	45		21	1	2	
50	51		13		5	1
48	140		41	1	5	
46	108		24	1	2	
44	183		32	1	2	
42	188	1	18	1	5	
40	203		38	2	11	1
38	255	7	23	2	5	
36	306	11	29	1	5	
34	236	6	27	3	3	1
32	291	17	30	2	5	1
30	265	8	27	1	4	
28	279	13	24	1	8	1
26	204	6	23		4	
24	232	4	25	1	7	
22	162		24	1		
20	165	1	19		1	
18	153	1	13		5	
16	110	1	16		4	
14	95		8		1	
12	88	1	8		2	
10	50		7		2	
8	41		4		1	
6	29		1		1	
4	21		4			
2	11		1			
0-1	11		2		1	
Total	3972	77	540	19	98	5
Q3	39.8	35.9	46.2	42.5	43.4	
Md	32.5	32.4	36.5	37.0	36.0	35.0
Q1	24.5	28.8	26.3	32.8	25.9	
Range	0-60	13.7-42.9	1-60	23.0-52.5	0-59	29.8-50.5
10 %ile	16.9	25.9	18.5	25.8	16.9	
90 %ile	46.0	38.1	52.5	48.2	51.7	

---Median, combined spring programs, 1956, 1957, 1958

TABLE II

DISTRIBUTIONS OF SCORES AND COLLEGE MEDIANS ON ACHIEVEMENT TEST, LEVEL I,
FORM A-S, IN FIRST YEAR CLASSES WHERE LESS THAN
90 PER CENT VOLUNTARILY TOOK THE TEST

Score	Scores of Individuals	Medians of Colleges
60		
58		
56	2	
54		
52	2	
50		
48	1	
46	1	
44	3	
42	8	
40	8	
38	7	1
36	7	1
34	7	1
32	6	
30	4	2
28	6	
26	5	
24	2	
22	3	1
20	5	
18	3	
16	2	
14	1	
12	2	1
10	2	
8		
6		
4		
2		
0-1		
Total	87	7
Q3	40.8	
Md	34.7	31.5
Q1	26.7	
Range	10-57	13.0-39.7
10 %ile	19.1	
90 %ile	44.2	

---Median, combined spring programs, 1956, 1957, 1958

TABLE III

DISTRIBUTIONS OF SCORES AND COLLEGE MEDIANS ON ACHIEVEMENT TEST, LEVEL I,
FORM A, IN CLASSES WHERE THE TEST WAS REQUIRED OR WHERE
90 PER CENT OR MORE TOOK IT ON A VOLUNTARY BASIS

Score	FIRST YEAR		SECOND YEAR		THIRD YEAR	
	Scores of Individuals	Medians of Colleges	Scores of Individuals	Medians of Colleges	Scores of Individuals	Medians of Colleges
120						
117	1					
114			2			
111	3		2			
108	1					
105	2		2		3	
102	5		4		2	
99	9		10		7	
96	12		15	1	5	1
93	20		19		6	
90	29		17		4	
87	53		33	1	13	1
84	51		26	2	8	2
81	72		24	1	7	
78	88	1	21	2	9	1
75	103		29	2	12	1
72	121	1	28	2	8	1
69	149		31	3	6	
66	190	4	29	2	5	
63	181	2	33	2	3	
60	174	11	23	1	2	
57	229	7	27		3	
54	192	8	24	2	2	
51	199	5	20		6	
48	180	9	21		1	
45	200	5	14	2		
42	196	6	13		1	
39	172	5	19	1		
36	145	1	12	1	1	
33	125		12		1	
30	105	1	7			
27	87		6			
24	72		6			
21	40		3			
18	35		2			
15	36		1			
12	14					
9	15		1			
6	10					
3	5					
0-2	4					
Total	3325	66	536	25	115	7
Q3	67.2	60.7	83.5	79.1	89.6	
Md	54.4	54.4	68.5	70.5	80.2	84.8
Q1	41.4	47.1	53.6	60.8	70.9	
Range	0-119	32.3-79.9	11-116	36.0-96.6	35-107	73.5-96.8
10 %ile	30.4	41.8	39.6	45.8	56.3	
90 %ile	78.5	65.1	93.1	86.3	99.2	

---Median. combined spring programs, 1956, 1957, 1958

TABLE IV

DISTRIBUTIONS OF SCORES AND COLLEGE MEDIANS ON ACHIEVEMENT TEST,
LEVEL I, FORM A, IN CLASSES WHERE LESS THAN
90 PER CENT VOLUNTARILY TOOK THE TEST

Score	FIRST YEAR		SECOND YEAR	
	Scores of Individuals	Medians of Colleges	Scores of Individuals	Medians of Colleges
120				
117				
114				
111				
108			1	
105				
102			2	
99			2	
96	1			
93	3			
90	4		1	
87	5		1	
84	2			
81	2		2	
78	6		2	
75	3		5	1
72	8		7	1
69	10	2	4	
66	9			
63	7		8	1
60	10		6	
57	13	1	3	
54	4		4	
51	12	1	7	2
48	10	2	4	
45	9		7	
42	7		1	
39	8		2	
36	10	1	2	
33	14		1	
30	4		2	
27	2		1	
24	3			
21				
18	3			
15	1			
12				
9				
6				
3	1			
0-2				
Total	171	7	75	5
Q3	69.4		73.8	
Md	55.1	52.5	61.8	64.5
Q1	40.8		50.1	
Range	5-98	38.3-70.5	29-110	51.0-75.0
10 %ile	33.7		41.3	
90 %ile	81.0		83.3	

---Median, combined spring programs, 1956, 1957, 1958

TABLE V
DISTRIBUTIONS OF SCORES AND COLLEGE MEDIANS ON ACHIEVEMENT TEST,
LEVEL II, FORM D, IN COMBINED SECOND AND THIRD YEAR CLASSES

Score	REQUIRED*		VOLUNTARY*	
	Scores of Individuals	Medians of Colleges	Scores of Individuals	Medians of Colleges
100				
98				
96	1			
94				
92				
90	2			
88	1		1	
86	1		1	
84	6		1	
82	2		1	
80	3		1	
78	5		3	
76	2		1	
74	4			
72	7		2	
70	11	1		
68	3		1	
66	8		3	1
64	9		5	
62	12		2	
60	7	1	3	1
58	10	1	2	
56	12	1	5	
54	11	3	4	1
52	14	1	2	1
50	20	1	2	
48	15	1	3	
46	7			
44	10	2		
42	14	2	2	
40	12		3	1
38	11	2	6	
36	16	1	4	2
34	11			
32	4		1	
30	11	3	1	
28	6		2	
26	7		2	
24	9	1	2	
22	10	1	1	
20	8			
18	13		1	
16	5			
14	3		1	
12	7			
10				
8	3			
6	4			
4	2			
2	1			
0-1	1			
Total	341	22	69	7
Q3	59.8	55.0	65.1	
Md	46.7	45.0	54.8	53.0
Q1	31.1	37.0	38.8	
Range	0-96	23.0-70.5	14-88	37.0-66.0
10 %ile	19.2	30.1	27.9	
90 %ile	72.0	59.6	78.7	

---Median, combined spring programs, 1954 through 1958

*Colleges testing on required basis plus classes in which 90 per cent or more of the students voluntarily took the test

xColleges having classes in which less than 90 per cent of the students took the test

TABLE VI
DISTRIBUTIONS OF SCORES AND COLLEGE MEDIANS ON ACHIEVEMENT TEST,
LEVEL II, FORMS D AND B, IN SENIOR CLASSES

Score	FORM D REQUIRED*		FORM D VOLUNTARY ^x		Score	FORM B REQUIRED*	
	Scores of Individuals	Medians of Colleges	Scores of Individuals	Medians of Colleges		Scores of Individuals	Medians of Colleges
100	1		1		150		
98	2				147		
96	5				144		
94	7				141		
92	5		4		138	1	
90	18		6		135		
88	11		1		132		
86	20		2		129	2	
84	28		8		126	3	
82	29		3		123	2	
80	21		3		120	7	
78	34		9	1	117	12	
76	38	2	4		114	5	
74	40	1	10		111	5	
72	53	1	4		108	15	
70	53	2	9		105	14	
68	44	1	9	1	102	18	
66	63	6	11	1	99	29	2
64	44	2	10	1	96	21	1
62	46	2	5	1	93	30	1
60	52	4	10	1	90	29	1
58	42	2	9		87	23	2
56	25	5	3		84	31	3
54	60	4	11	1	81	25	2
52	43	4	4		78	28	3
50	46	3	4		75	26	2
48	62	8	10	2	72	33	2
46	40	2	3	3	69	28	
44	36	1	9		66	18	
42	37	1	10		63	12	
40	34	1	5		60	24	1
38	20	2	2		57	19	
36	27	1	4		54	13	1
34	26	1	4	1	51	4	
32	19		8		48	4	
30	28	2	3	2	45	6	1
28	20		4		42	4	
26	17		6		39	4	
24	22	1	3		36	5	
22	15		1		33	3	
20	7		6		30	3	
18	16		2		27		
16	12				24	1	
14	14	1			21		
12	11				18	1	
10	8				15		
8	6				12		
6	9		1		9		
4	2		1		6		
2					3		
0-1	3				0-2		
Total	1321	60	222	15	Total	508	22
Q3	71.3	64.0	71.9	64.5	Q3	97.0	89.3
Md	57.6	55.0	59.6	49.5	Md	83.2	82.5
Q1	42.8	48.5	43.1	46.5	Q1	69.6	75.8
Range	0-100	15.0-77.5	5-100	31.0-78.0	Range	19-140	46.5-101.3
10 %ile	26.8	38.0	29.1	31.5	10 %ile	57.4	60.6
90 %ile	81.4	70.0	83.9	69.0	90 %ile	108.2	98.4

----Median, combined spring programs 1957, 1958

---Median, combined spring programs, 1956, 1957, 1958

*Colleges testing on required basis plus classes in which 90 per cent or more of the students voluntarily took the test

^xColleges having classes in which less than 90 per cent of the students took the test

TABLE VII

DISTRIBUTIONS OF SCORES AND COLLEGE MEDIANS ON ORIENTATION TEST, FORM A,
IN FIRST YEAR CLASSES WHERE THE TEST WAS REQUIRED OR WHERE
90 PER CENT OR MORE TOOK IT ON A VOLUNTARY BASIS

VERBAL			QUANTITATIVE			TOTAL		
Score	Scores of Individuals	Medians of Colleges	Score	Scores of Individuals	Medians of Colleges	Score	Scores of Individuals	Medians of Colleges
99-100								
96						160		
93						155		
90			60			150		
87			58			145		
84			56			140		
81			54	3		135		
78	2		52	2		130		
75	1		50	5		125	1	
72	5		48	7		120	1	
69	2		46	5		115	3	
66	4		44	10		110	4	
63	7		42	16		105	12	
60	17		40	13		100	8	
57	22		38	19		95	14	
54	18		36	14		90	19	
51	22		34	38		85	30	
48	32		32	26		80	35	
45	31		30	33	2	75	34	
42	44	2	28	40		70	44	3
39	40	1	26	42	1	65	56	1
36	49	2	24	48	1	60	49	1
33	44	2	22	51	1	55	53	
30	53	1	20	30	2	50	52	2
27	44	1	18	43	2	45	46	2
24	49	2	16	34	1	40	31	1
21	28		14	30		35	32	1
18	24		12	25	1	30	19	
15	14		10	18		25	22	
12	16		8	16		20	11	
9	11		6	6		15	11	
6	10		4	9		10	3	
3	4		2	4		5	3	
0-2			0-1	6		0-4		
Total	593	11	Total	593	11	Total	593	11
Q3	46.4		Q3	32.8		Q3	76.9	
Md	36.0	35.3	Md	25.0	21.5	Md	61.4	53.8
Q1	26.5		Q1	18.0		Q1	46.8	
Range	3-79	24.0-43.7	Range	0-55	12.7-31.8	Range	6-127	35.0-73.8
10 %ile	18.5		10 %ile	12.0		10 %ile	32.4	
90 %ile	57.1		90 %ile	40.3		90 %ile	90.7	

---Medians, combined spring programs, 1956, 1957, 1958

TABLE VIII

DISTRIBUTIONS OF SCORES AND COLLEGE MEDIANS ON ORIENTATION TEST, FORM A,
IN FIRST YEAR CLASSES WHERE LESS THAN
90 PER CENT VOLUNTARILY TOOK THE TEST

Score	VERBAL		Score	QUANTITATIVE		Score	TOTAL	
	Scores of Individuals	Medians of Colleges		Scores of Individuals	Medians of Colleges		Scores of Individuals	Medians of Colleges
99-100								
96						160		
93						155		
90			60			150		
87			58			145		
84	1		56			140		
81			54	2		135		
78			52	2		130		
75			50	1		125	1	
72			48	1		120		
69			46	2		115		
66			44	5		110		
63	2		42	4		105		
60	2		40	4		100	6	
57	3		38	6	1	95	2	
54	6		36	8		90	4	
51	7		34	5		85	10	1
48	7	1	32	5		80	8	1
45	9		30	5	2	75	11	
42	11	1	28	13		70	14	
39	10		26	16	2	65	9	1
36	11	2	24	9		60	13	1
33	12	1	22	11		55	15	3
30	16	3	20	11	2	50	17	1
27	9		18	7	3	45	8	1
24	22	2	16	8		40	11	1
21	5		14	2		35	4	
18	4		12	4		30	5	
15	4		10	5		25	2	
12			8	3		20	2	
9	2		6			15	1	
6			4	1		10		
3			2	1		5		
0-2			0-1	2		0-4		
Total	143	10	Total	143	10	Total	143	10
Q3	45.4		Q3	35.7		Q3	77.8	
Md	35.4	33.0	Md	26.9	24.0	Md	62.5	58.3
Q1	26.8		Q1	20.5		Q1	50.8	
Range	9-84	25.9-49.5	Range	0-55	18.0-39.0	Range	18-127	44.2-87.5
10 %ile	23.6		10 %ile	13.2		10 %ile	40.1	
90 %ile	53.9		90 %ile	43.4		90 %ile	89.4	

----Medians, combined spring programs, 1956, 1957, 1958

RELATION AMONG TEST SCORES, COURSE GRADES,
AND CPA EXAMINATION GRADES AT VPI

By

Robert D. North

To assist in the evaluation of the validity of the aptitude and achievement tests used in the College Accounting Testing Program, Professor William S. Gay recently submitted extensive data on Virginia Polytechnic Institute accounting students for the period 1946-58. A report on the results of the Project Office analysis of these data is being prepared for the Journal of Accountancy, but some of the statistical tables are too extensive for publication in that journal. These tables are presented here, with a brief discussion, for reference purposes.

Table I shows the correlations between the scores on the Orientation Test, administered at the beginning of the academic year, and the scores on the Level I Achievement Test, given at the end of the year, for first-year accounting students. It will be noted that the correlations range from .33 to .56, with a median of .48. The highest correlation is that between Form C of the Orientation Test and Form B of the Level I test. In general, the relation between the scores on the two tests is substantial, indicating that the Orientation Test may be used effectively as one basis for predicting success in accounting study at the elementary level.

Table I

Correlations Between Orientation Test and Level I Achievement Test
Scores for First-Year Accounting Students at VPI

Academic Year	Forms of Tests		N	<u>r</u>
	Orientation	Level I Achievement		
1955-56	A	A	104	.48
1947-48, 1948-49	A	B	224	.41
1946-47, 1953-54, 1956-57	B	A	275	.47
1952-53, 1954-55	B	B	127	.56
1950-51	B	C	65	.33
1951-52	C	A	73	.48
1949-50	C	B	72	.50
			Median	.48

The elementary accounting courses offered in the three quarters of the first year at VPI are designated Accounting 211, Accounting 221, and Accounting 231. The correlations of the Orientation Test and Level I

Achievement Test scores with grades in these courses are summarized in Table II. The Orientation Test correlations range from .19 up to .41, with a median of .32. It is interesting to find that Form B of the Orientation Test yields the highest correlations with the grades in the 211 and 221 courses, while Form C has the highest correlation with the 231 course grades.

Table II
Correlations of Orientation and Achievement Test Scores
With Grades in Elementary Accounting Courses at VPI

Orientation Test				
Academic Years	Form	Course	N	\bar{r}
1947-49, 1955-56	A	211	553	.29
1946-47, 1950-51, 1952-55, 1956-57	B	211	746	.41
1949-50, 1951-52	C	211	280	.39
1947-49, 1955-56	A	221	406	.27
1946-47, 1950-51, 1952-55, 1956-57	B	221	596	.33
1949-50, 1951-52	C	221	191	.19
1947-49, 1955-56	A	231	339	.28
1946-47, 1950-51, 1952-55, 1956-57	B	231	492	.32
1949-50, 1951-52	C	231	152	.39
			Median	.32
Level I Achievement Test				
1946-47, 1951-52, 1953-54, 1955-57	A	211	430	.43
1947-50, 1952-53, 1954-55	B	211	426	.38
1950-51	C	211	65	.54
1946-47, 1951-52, 1953-54, 1955-57	A	221	459	.49
1947-50, 1952-53, 1954-55	B	221	434	.57
1950-51	C	221	65	.55
1946-47, 1951-52, 1953-54, 1955-57	A	231	448	.62
1947-50, 1952-53, 1954-55	B	231	432	.57
1950-51	C	231	65	.60
			Median	.55

The correlations between the Level I Achievement Test scores and the course grades range from .38 to .62, with a median of .55. The correlations tend to be higher for the 231 course than for the 211 and 221 courses. This is understandable, since the Level I Achievement Test is designed for use at the end of the first year of college accounting study.

Grade averages in junior and senior accounting courses for 197 students who majored in accounting at VPI during the twelve-year period were among the data provided. The correlations of the available Orientation Test and Level I Achievement Test scores with these averages are shown in Table III. Since the group sizes are relatively small, these correlations should be interpreted cautiously.

The A and C forms of the Orientation Test yielded substantial correlations of .50 and .60, respectively, with the grade averages. The Orientation Test, Form B, correlation of .24 is relatively low, however. The correlations of the two forms of the Level I Achievement Test with the grade averages are moderate.

Table III

Correlations of First-Year Scores on the Orientation Test and Level I Achievement Test with Junior-Senior Accounting Course Grade Averages of Accounting Majors at VPI

Graduating Years	Test	Form	N	Correlations with Junior-Senior Grade Averages
'50, '51, '58	Orientation	A	44	.50
'49, '53, '55, '56, '57	Orientation	B	47	.24
'52, '54	Orientation	C	17	.60
				Median .50
'49, '54, '56, '58	Achievement Level I	A	42	.38
'50, '51, '52, '55, '57	Achievement Level I	B	57	.31
				Median .35

CPA Examination results were available for eighty-nine VPI students who took the examinations during the twelve-year period. Eighty of the candidates took the examination in Virginia.

Distributions of the available aptitude and achievement test percentiles of the candidates are shown in Table IV. In this table, no distinction is made among the various forms of the tests, since percentile ratings rather than raw scores were used as the basis for classification. The size of the group varies from one test to another, because not all of the candidates had taken the full schedule of objective examinations during their undergraduate years at VPI.

Table IV
Distributions of Orientation Test and Achievement Test Percentiles
of VPI Students Who Took the CPA Examinations, 1947-1958

%ile Range	Orientation Test 1st Year						Level I Achievement Test 2nd Year						Level II Achievement Test Senior Year					
	Passed 1st or Later Trials		Failed Total	Passed 1st or Later Trials		Failed Total	Passed 1st or Later Trials		Failed Total	Passed 1st or Later Trials		Failed Total	Passed 1st or Later Trials		Failed Total	Passed 1st or Later Trials		Failed Total
	Passed First Trial	Total		Passed First Trial	Total		Passed First Trial	Total		Passed First Trial	Total		Passed First Trial	Total		Passed First Trial	Total	
100																		
95-99			1	3	2	3	1	6	2	12	2	4	1	4	2	11	6	1
90-94	1	3	6	1	5	12	1	6	5	12	14	26	4	11	6	17	6	1
85-89	1	1	2	1	7	12	1	8	7	8	8	20	1	1	6	7	6	7
80-84	1	2	4	1	8	9	1	2	1	7	5	7	1	7	2	9	2	9
75-79	1	1	2	1	2	3	1	4	1	4	1	7	1	2	6	7	6	6
70-74	1	4	2	1	4	4	1	1	1	6	1	5	2	5	6	11	6	6
65-69	1	2	5	1	2	2	1	1	1	4	2	5	2	2	5	5	5	5
60-64	1	2	3	1	1	3	1	1	2	2	1	2	1	1	2	4	2	4
55-59	2	1	3	1	1	1	1	1	1	1	1	1	1	1	1	6	5	6
50-54	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	7	5	7
45-49			3	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1
40-44		1	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1
35-39		1	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
30-34		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25-29		4	7	3	7	7	7	7	7	7	7	7	7	7	7	7	7	7
20-24			3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
15-19		3	5	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10-14			3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
5-9			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0-4			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
N	7	29	70	41	35	53	4	18	35	53	7	31	53	84	33	86	53	86
Md	72.5	61.3	52.5	47.5	87.8	90.2	90.0	94.0	87.8	95.2	97.9	95.0	92.0	95.0	87.5	78.3	73.8	78.3
Range	53-93	16-94	2-97	2-97	46-100	46-100	82-97	68-100	46-100	74-100	96-100	96-100	43-100	43-100	20-100	12-100	12-97	12-100

It should be noted that when the candidates took the Achievement Tests in college, they tended to rank high in terms of the national norms. About half of those who took the Level I Achievement Test during their first or second years ranked in the top tenth of the norms, and more than half of those who took the Level II Achievement Test in their senior year ranked in the top quarter of the norms for that test. The seventy candidates who took the Orientation Test in their first year had a median that was just slightly above the norm median.

In the total group of candidates, ten passed the four parts of the CPA Examinations in their first trial. The undergraduate test records of these men are incomplete, but each took at least one of the tests. It is worth noting that the scores in this group did not go below the 50th percentile on the Orientation Test, nor below the 70th percentile on the Achievement Tests. The seven who took the Level I Achievement Test in their second year ranked especially high, with percentiles in the range of 96 to 100.

In addition to the ten men who passed the CPA Examinations in one sitting, twenty-five others passed them in two or more sittings, making a total group of thirty-five successful candidates during the twelve-year period. The aptitude and achievement test medians of those tested in this group are consistently higher than those of the group that failed the examinations. In the successful group, all of the Level I Achievement Test scores were in the upper third of the norms, and all but one of the Level II Achievement Test scores were in the upper half of the norms. In the group that failed, some of the Level I test scores ranged below the 50th percentile, and five of the fifty-three Level II test scores fell in the lower half of the norms.

Since the distributions of the scores of the successful and unsuccessful candidates overlap considerably, especially in the upper ranges, it is evident that success on the CPA Examinations cannot be predicted with confidence from the aptitude and achievement test scores. The data suggest, however, that a candidate has little chance of passing the CPA Examinations in one or more trials if he ranks in the lower two-thirds of the college program norms on the Level I Achievement Test during his first and second years of accounting study, or if he falls in the lower half of the norms on the Level II Achievement Test in his senior year.

In summary, the VPI data for the twelve-year period 1946-58 indicate that there are moderate to substantial correlations between the Orientation and Achievement Test scores, and between these scores and accounting course grades. The test scores also show some promise as a basis for identifying students who have little likelihood of passing the CPA Examinations.