

For Academic Counseling and Credit-Awarding Purposes

DSST exams were developed to enable schools to award credit to students for knowledge equivalent to that learned by students taking the course. The ultimate passing score for each exam is determined by the school. The school is provided with a recommended passing score established by a national council of college faculty who teach the relevant course. The DSST program is approved by the American Council on Education (ACE), and ACE provides both a recommended passing score and number of credits that could be awarded to successful students.

New Exam Title

In 2010, Prometric launched the new exam title *Business Ethics and Society*. This test was developed using the same methodology described below and follows the criterion-referenced method scoring scale.

Exam Updates

In 2008-2009, Prometric launched updated versions of 14 of its DSST examinations:

- Business Mathematics (2009)
- Criminal Justice (2008)
- Ethics in America (2008)
- Fundamentals of College Algebra (2008)
- Here's to Your Health (2008)
- Introduction to Business (2009)
- Introduction to Computing (2008)
- Introduction to World Religions (2008)
- Management Information Systems (2008)
- Personal Finance (2008)
- Principles of Finance (2009)
- Principles of Statistics (2008)
- Principles of Supervision (2009)
- Substance Abuse (2008)

A national examination council of college faculty was formed for each exam. Test items were newly-written to match the updated content outline for each exam. In addition to updating content of the exams, pass/fail standard-setting methodologies and new score scales were introduced starting in 2008.

Cut Score Determinations

Unlike the norm-referenced approach used for DSST exams previously, criterion-referenced methods are being used to set an absolute standard for all updated exams beginning in 2008. For each exam, national council members participated in a series of standard-setting activities, including modified Angoff (1971) and Beuk (1985) procedures. For these procedures, the minimally-competent candidate was defined as a student who would just pass the respective course.

Equating Multiple Forms

Multiple forms for each exam were constructed to include an average of 30% items in common. These overlapping items were drawn strategically from across the testing domains to approximate the domain coverage plan established in the content outline for each exam. When sufficiency of beta data allowed, Rasch modeling and polynomial regression methodologies were used to equate forms for each exam. Separate standard-setting procedures were conducted on each individual form when sufficient beta data was not yet available, and linear equating methodologies were used to map raw scores to scaled scores.

Score Scales & Score Reporting

The new score scale introduced for the 2008 and later updated exams uses scores ranging from 200 to 500, with the cut score (pass point) set at 400 for all exams. Score reports for candidates provide the scaled score achieved and the corresponding pass/fail status.

B-Grade Equivalent Scaled Scores

Because of the conversion to criterion-referenced standard-setting, various grade equivalents were not established. However, some credit-awarding schools have requested a B-grade equivalent scaled score be provided in addition to the 400 cut score. B-grade equivalent scores have been calculated for each of the 14 exams updated in 2008-2009 and they are provided, along with B-grade equivalents, for the remaining norm-referenced exams, in the table on the next page.

B-Grade Equivalent Scores

Exam Title, 2008-2009 Updated Exams & New Exam Title	Criterion-Referenced Cut Score	Calculated B-Grade Equivalent
Business Ethics and Society (new – 2010)	400	433
Business Mathematics	400	438
Criminal Justice	400	428
Ethics in America	400	422
Fundamentals of College Algebra	400	434
Here's to Your Health	400	426
Introduction to Business	400	420
Introduction to Computing	400	432
Introduction to World Religions	400	426
Management Information Systems	400	430
Personal Finance	400	433
Principles of Finance	400	432
Principles of Statistics	400	441
Principles of Supervision	400	419
Substance Abuse (formerly Drug & Alcohol Abuse)	400	428

Exam Title, Exams Prior to 2008-2009 Updates	Norm-Referenced Cut Score (C-Grade)	B-Grade Equivalent
Criminal Justice	49	54
Ethics in America	46	50
Fundamentals of College Algebra	47	50
Here's to Your Health	48	51
Introduction to Computing	45	51
Introduction to World Religions	48	52
Management Information Systems	46	50
Personal Finance	46	51
Principles of Statistics	48	51
Drug & Alcohol Abuse	49	53
Art of the Western World	48	53
Western Europe Since 1945	45	49
Introduction to the Modern Middle East	47	51
Human/Cultural Geography	48	54
Rise and Fall of the Soviet Union	45	51
A History of the Vietnam War	44	49
The Civil War and Reconstruction	47	52
Foundations of Education	46	50
Lifespan Developmental Psychology	46	51
General Anthropology	47	53
Introduction to Law Enforcement	45	52
Fundamentals of Counseling	45	48
Principles of Finance	46	53
Principles of Financial Accounting	47	52
Human Resource Management	46	53
Organizational Behavior	48	52
Principles of Supervision	46	49
Business Law II	44	53
Introduction to Business	46	54
Money and Banking	48	54
Business Mathematics	48	49
Astronomy	48	52
Environment and Humanity: The Race to Save the Planet	46	53
Principles of Physical Science	47	52
Physical Geology	46	53
Technical Writing	46	50
Principles of Public Speaking	47	52

Technical Data Sheet for Norm-Referenced Exams Prior to 2008 Criterion-Referenced Phased Transition

Norming forms of DSST exams were administered to college-level students who were completing courses for credit in various subjects. The schools that participated ranged in size from large state universities to small private colleges to local community colleges. Geographic distribution was wide, with schools from all areas of the United States participating.

As each DSST was developed, it was administered to a representative sample of students who have completed a college course in the subject. The scale ranges from 20 to 80 with the average score of students in the representative sample set equal to 50 and the standard deviation of scores set equal to 10.

Raw scores were converted to scaled scores with a mean of 50.0 and a standard deviation of 10.0 using the formula $S = AX + B$, where S = the scaled score, and X = the raw score. Scaled scores are related to raw scores via the above linear transformation equation, using the A (the slope of the line) and B (The y -axis intercept) as conversion parameters which are test-form-specific.

DSST Standard Scores

Tests in the DSST Program scored under the Norm-Referenced method are reported in terms of standard scores and not in terms of the number of correct answers. One reason for using a standard score is that if more than one form of a test is developed, the test can be equated statistically to allow for differences in difficulty level from one form to another. This means that the examinee could miss questions on a difficult form of a test and get the same standard score as an examinee who missed fewer questions on an easier form of the test.

When two test forms in the **same** subject have been equated, the scores have the same meaning, representing the same level of ability, and can be compared.

Scale scores for **different** subjects do not have the same meaning and cannot be compared. The calculation of a standard score requires a different conversion/formula for each test. Without the formula, one cannot work back from a standard score to learn the number of correct responses.

ACE Recommendations

The American Council on Education (ACE[®]) reviewed and approved the standard setting procedures. ACE also recommends the amount of credit that should be awarded to candidates.

The decision regarding credit is based primarily on two factors. The first is that the content of the examination reflects the content of the course. The second is that the score a student could be expected to achieve on the test is comparable to the score achieved by a student who has successfully completed the course. For DSST exams, the recommended minimum scale score is the average score that was achieved on the test by college students who received a grade of C in the actual subject.

Examination	Average scaled score students with a grade of A	Average scaled score students with a grade of B	Average scaled score students with a grade of C	Number of Students	Number of Items	Mean Raw Score	Standard Deviation Raw Score	KR-20 Reliability	Standard Error of Measurement	Average grade/ Test score correlation
Fundamentals of College Algebra**	58	50	47	710 735	78 79	35 35.7	11.2 10.6	.88 .85	Raw 3.9 Scaled 3.5 Raw 4.0 Scaled 3.6	.65 .68
Principles of Statistics**	58	51	48	1027 1186	100 97	45.1 45.1	13.1 11.7	.88 .86	Raw 4.5 Scaled 3.4 Raw 4.4 Scaled 3.6	.54 .52
Art of Western World	59	53	48	529	88	41.5	11.8	.87	Raw 4.3 Scaled 3.65	.53
Western Europe Since 1945	57	49	45	116 174	103 102	58.1 53.1	14.3 15.1	.90 .91	Raw 4.6 Scaled 3.2 Raw 4.5 Scaled 3.2	.57 .57
Introduction to the Modern Middle East	58	51	47	86 133	99 95	43.9 45.6	11.7 12.7	.85 .88	Raw 4.5 Scaled 3.8 Raw 4.4 Scaled 3.8	.65 .61
Human/Cultural Geography	54	54	48	635 535	98 98	56.2 58.1	13.4 14.9	.89 .91	Raw 4.4 Scaled 3.3 Raw 4.4 Scaled 3.1	.48 .58
Rise and Fall of the Soviet Union	57	51	45	401 200	100 95	50.0 50.0	13.9 12.7	.90 .88	Raw 4.5 Scaled 3.2 Raw 4.4 Scaled 3.1	.55 .58
A History of the Vietnam War	56	49	44	183 104	100 103	58.2 54.2	11.0 11.7	.84 .86	Raw 4.4 Scaled 4.0 Raw 4.4 Scaled 3.8	.60 .41
The Civil War and Reconstruction	58	52	47	495 475	112 112	62.0 56.1	15.5 19.8	.91 .94	Raw 4.7 Scaled 3.0 Raw 4.8 Scaled 2.7	.62 .54
Foundations of Education	54	50	46	795	94	45.0	10.7	.83	Raw 4.4 Scaled 4.1	.47
Lifespan Developmental Psychology	56	51	46	1070 1685	97 97	58.9 55.5	11.1 11.7	.85 .86	Raw 4.3 Scaled 3.9 Raw 4.4 Scaled 3.9	.63 .58
General Anthropology	57	53	47	995	102	55.9	12.6	.87	Raw 4.5 Scaled 3.4	.66

Examination	Average scaled score students with a grade of A	Average scaled score students with a grade of B	Average scaled score students with a grade of C	Number of Students	Number of Items	Mean Raw Score	Standard Deviation Raw Score	KR-20 Reliability	Standard Error of Measurement	Average grade/ Test score correlation
Drug and Alcohol Abuse**	52	53	49	775	103	58.0	16.8	.93	Raw 4.4 Scaled 2.6	.55
				726	106	54.6	17.4	.93	Raw 4.5 Scaled 2.4	.46
Introduction to Law Enforcement	57	52	45	465	97	60.2	11.9	.87	Raw 4.3 Scaled 3.6	.49
				594	97	56.6	13.2	.89	Raw 4.3 Scaled 3.3	.53
Criminal Justice**	58	54	49	780	88	53.5	12.6	.90	Raw 4.1 Scaled 3.3	.56
				1460	90	52.5	11.7	.87	Raw 4.2 Scaled 3.1	.57
Fundamentals of Counseling	55	48	45	705	99	58.7	12.6	.88	Raw 4.4 Scaled 3.5	.51
				645	99	59.4	12.5	.88	Raw 4.4 Scaled 3.4	.59
Principles of Finance*	59	53	46	655	88	50.3	12.5	.89	Raw 4.1 Scaled 3.3	.70
				525	88	43.6	14.2	.91	Raw 4.3 Scaled 3.0	.61
Principles of Financial Accounting	61	52	49	765	73	42.4	11.1	.88	Raw 3.8 Scaled 3.4	.71
Human Resource Management	54	53	46	556	100	57.5	12.9	.88	Raw 4.4 Scaled 3.41	.42
				653	99	60.7	11.4	.86	Raw 4.3 Scaled 3.61	.51
Organizational Behavior	56	52	48	1025	96	58.1	12.2	.87	Raw 4.3 Scaled 3.5	.55
				920	96	50.9	12.8	.88	Raw 4.4 Scaled 3.7	.52
Principles of Supervision*	53	49	46	935	85	56.3	10.8	.87	Raw 3.9 Scaled 3.6	.53
				620	86	53.2	12.4	.90	Raw 4.0 Scaled 3.3	.60
Business Law II	56	53	52	643	94	42.3	13.7	.90	Raw 4.3 Scaled 3.14	.52
Introduction to Computing**	54	51	45	542	98	52.8	14.6	.91	Raw 4.4 Scaled 3.0	.42
				588	96	50.8	14.5	.91	Raw 4.4 Scaled 3.2	.51
Introduction to Business*	58	54	46	970	100	57.6	15.7	.92	Raw 4.4 Scaled 2.8	.65
				1405	100	60.4	13.6	.89	Raw 4.4 Scaled 3.1	.61
Money and Banking	59	54	48	755	94	52.7	12.9	.88	Raw 4.4 Scaled 3.4	.59
				605	94	50.6	13.8	.90	Raw 4.4 Scaled 3.0	.68
Personal Finance**	59	51	46	780	98	54.1	12.8	.88	Raw 4.5 Scaled 3.5	.61
				280	98	51.2	13.0	.88	Raw 4.5 Scaled 3.3	.61
Management Info Systems**	57	50	46	1412	92	50.9	13.3	.89	Raw 4.4 Scaled 3.3	.52
				590	89	45.8	10.6	.83	Raw 4.3 Scaled 3.6	.39
Business Mathematics*	56	49	48	345	54	23.5	7.1	.79	Raw 3.3 Scaled 4.6	.62
				421	59	26.6	8.0	.82	Raw 3.4 Scaled 4.0	.56
Astronomy	58	52	48	745	87	44.9	13.0	.90	Raw 4.1 Scaled 3.2	.64
				639	82	37.1	12.4	.89	Raw 4.0 Scaled 3.3	.67
Here's to Your Health**	56	51	48	775	101	67.0	12.9	.89	Raw 4.2 Scaled 3.1	.50
				835	101	62.1	14.4	.91	Raw 4.4 Scaled 3.1	.61
Environment and Humanity: The Race to Save the Planet	55	53	46	995	95	60.4	13.5	.91	Raw 4.1 Scaled 3.0	.67
				831	104	62.8	14.5	.91	Raw 4.4 Scaled 3.1	.66
Principles of Physical Science I	57	52	47	788	75	31.6	10.6	.87	Raw 3.8 Scaled 3.6	.60
				519	71	29.2	9.0	.82	Raw 3.8 Scaled 3.8	.55
Physical Geology	60	53	46	905	117	70.9	17.0	.93	Raw 4.6 Scaled 2.7	.77
				829	114	58.2	17.5	.92	Raw 4.8 Scaled 2.9	.67
Technical Writing	56	50	46	1255	100	64.1	13.9	.90	Raw 4.3 Scaled 3.1	.48
				965	100	57.2	12.3	.87	Raw 4.4 Scaled 3.5	.55
Ethics in America**	54	50	46	590	111	67.9	12.0	.85	Raw 4.6 Scaled 3.9	.46
				687	110	68.3	11.5	.84	Raw 4.6 Scaled 4.0	.46
Introduction to World Religions**	57	52	48	526	105	52.5	14.3	.90	Raw 4.6 Scaled 3.22	.49
				519	108	55.9	14.4	.90	Raw 4.6 Scaled 3.22	.51
Principles of Public Speaking	55	52	47	1010	84	52.3	11.0	.87	Raw 3.9 Scaled 3.6	.44
				765	84	58.1	12.7	.91	Raw 3.7 Scaled 2.2	.56

* Applicable only for exams that have been taken prior to the 2009 refresh.

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