ACES

Report Requested: 03-15-2008 **Study ID:** R08xxxx

Placement Validity Report for Sample One University

Data in this report are not representative of any institution. All data are hypothetical and were generated for the sole purpose of creating this sample report.

Your College Board Validity Report is designed to assist your institution in validating your placement decisions. This report provides a nontechnical discussion of important findings.

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Section 1: The purpose of this report

The purpose of an ACES™ Placement Validity Report is to assist you in using academic measures to identify the course level that is most appropriate for a student's ability level. This report will enable you to use these measures to predict the probability that the student will succeed in a particular course. This report will also help you to decide which measures to use to predict that success.

ACES reports often mention the terms **predictor variables** and **criterion**. Predictor variables include such things as scores from standardized tests, as well as specific campus measures. A criterion is a course outcome measure of success. An example of a criterion is the final grade in the course.

When requesting this report, you indicated that you wished to study placement in two courses.

- You chose to study the following as predictors of success in Eng100: SAT Critical Reading and SAT Writing.
- You chose to study the following as predictors of success in Eng211: SAT Critical Reading, SAT Writing, and Composition.

Using final course grade as the criterion, your report provides predictions for two levels of success. These levels are:

- Success defined as a final course grade of C or higher, and
- Success as a final course grade of B or higher.

Students who met the level of success by achieving the identified grade or a higher grade were considered successful, while those students who earned less than the identified grade in each success level were not.

Limitations of this information

ACES Placement Validity Reports are useful when your primary concern is predicting a student's success in a course on the basis of that student's score on a specific test. In certain cases, a student's predicted success may not be the only consideration in making placement decisions. For some courses, prerequisite knowledge of other subjects may be desired.

This report assumes that the predictor variables (test scores, for example) were collected before students had taken the course in which you are trying to predict success, with no intervening course taken in this subject other than the course in the analysis.

It is sometimes appropriate to collect test scores at the end of the course instead. For help in making placement decisions in situations where the information in this report does not apply, click on the Validity Handbook link on the ACES Web site for additional information (http://professionals.collegeboard.com/higher-ed/validity/aces/handbook). You may also contact the ACES staff at aces@info.collegeboard.org for advice.

The College Board makes every effort to ensure that the information provided in this report is accurate. Inaccurate findings may be the result of missing or inaccurate data provided by the institution or discrepancies that developed when matching the institution's data with the College Board database.

Section 2: Your sample of students

In your report, the **sample** is the group of students for whom you have scores on the predictor variable(s) and on the criterion. Using the data derived from the sample of students used to generate this report, you will generalize to a larger population of students. That is, using the same predictor variable(s), you can use this report to predict the probability of success for future students. Predictions are more likely to be accurate if the sample of students used to generate the report is similar to the group of students whose success you want to predict. It is important that the sample be similar to the population for which you will be making predictions in ways that are and are not measured by the predictors. Some examples of these characteristics that are not measured by the predictors are gender balance, ethnic/racial make-up, and age range.

The following tables provide information about national comparison data and the sample of students for your specified courses. The sample is defined and represented two ways. The **study sample** consists of students for whom you provided course grades and information for at least one of the predictor variable(s) that you requested be used in your study. The **complete data sample**, a subset of your study sample, consists of students for whom you provided course grades **and** who have scores on **all** the predictor variables specified in your request.

Institutions frequently ask, "How large a sample is large enough?" In general, the larger the sample, the more accurate the prediction formulas resulting from your study. The minimum number of students required for a study depends on the number of predictors used. If one to three predictors are used, a minimum of 30 students is required; for four predictors, a minimum of 40 students; and for five predictors, a minimum of 50 students.

Characteristics of Students Taking Eng100
Using SAT Scores

	Graduating H.S. Seniors - 2006	Study Sample	Complete Data Sample
SAT Critical Reading			
N	1458754	492	492
Mean	508	463	463
S.D.	108	69	69
SAT Math			
N	1458754	492	492
Mean	521	469	469
S.D.	114	65	65
SAT Writing			
N	1458754	492	492
Mean	523	472	472
S.D.	108	66	66
Gender (N & %)			
Male	720703 (49%)	196 (40%)	196 (40%)
Female	738051 (51%)	294 (60%)	294 (60%)
Race/Ethnicity (N & %)			
Asian	104051 (10%)	9 (2%)	9 (2%)
African-American	130624 (13%)	34 (8%)	34 (8%)
Hispanic	110815 (11%)	8 (2%)	8 (2%)
White	680866 (66%)	366 (88%)	366 (88%)
Best Language (N & %)			
English	978872 (88%)	408 (99%)	408 (99%)
English and Other	101696 (9%)	3 (1%)	3 (1%)
Other	29140 (3%)	0 (0%)	0 (0%)

Characteristics of Students Taking Eng211 Using SAT Scores			
	Graduating H.S. Seniors - 2006	Study Sample	Complete Data Sample
SAT Critical Reading			
N	1458754	282	277
Mean	508	508	509
S.D.	108	74	73
SAT Math			
N	1458754	282	277
Mean	521	520	521
S.D.	114	65	65
SAT Writing			
N	1458754	282	277
Mean	523	515	518
S.D.	108	65	65
Composition			
N		277	277
Mean		86	86
S.D.		9	9
Gender (N & %)			
Male	720703 (49%)	113 (45%)	109 (44%)
Female	738051 (51%)	139 (55%)	138 (56%)
Race/Ethnicity (N & %)			
Asian	104051 (10%)	4 (2%)	4 (2%)
African-American	130624 (13%)	11 (5%)	9 (4%)
Hispanic	110815 (11%)	2 (1%)	2 (1%)
White	680866 (66%)	209 (92%)	206 (93%)
Best Language (N & %)			
English	978872 (88%)	229 (98%)	224 (98%)
English and Other	101696 (9%)	5 (2%)	5 (2%)
Other	29140 (3%)	0 (0%)	0 (0%)

The following tables summarize the relationship of the predictor variable(s) with final grades for each course in your study. For each course, a table provides the number of test-takers, the mean, and the standard deviation for each predictor variable for each of the possible course grades.

If + and/or - grades were submitted, they would have been grouped with the corresponding base grade. For example, in the following tables, the B column would include B+, B, and B- grades.

Average SAT Scores by Grade in Eng100					
	A	B	C	D	F
SAT Critical Reading					
N	75	134	152	85	46
Mean	479	471	462	451	440
S.D.	57	62	59	63	70
SAT Writing					
N	82	85	125	114	86
Mean	489	480	474	464	458
S.D.	10	15	14	15	21

Average SAT Scores by Grade in Eng211					
	A	B	C	D	F
SAT Critical Reading					
N	44	58	100	50	30
Mean	532	520	507	496	477
S.D.	64	53	63	79	58
SAT Writing					
N	75	87	60	50	10
Mean	538	526	506	483	471
S.D.	12	11	12	12	10
Composition					
N	56	64	61	50	46
Mean	96	90	86	81	75
S.D.	10	10	11	10	8

Section 3: Strength of prediction

If you submitted data for more than one predictor variable, you will need to decide which predictor or combination of predictors to use in making placement decisions. You will want to examine the strength of the relationship between each predictor and the criterion and also, when submitting multiple predictor variables, the strength of the relationship between all combinations of predictor variables and the criterion measure. The predictors or combinations of predictors that correlate most highly with success in the course are the best measures to use in deciding whether or not to place a student into a course.

Correlation coefficient

A common method for measuring the strength of the relationship between a predictor and a criterion is the **correlation coefficient**. The correlation coefficient indicates the extent to which scores on the criterion can be predicted from scores on the predictor variable. For example, in this study, scores on SAT Writing were used to predict final course grades in Eng100. The sign and size of the correlation denote the direction and degree of relationship between two variables.

Correlation coefficients always have a value between -1 and 1. If there is no relationship between two variables, their correlation will be 0.00. A positive correlation coefficient indicates that high scores on the predictor variable are associated with high values on the criterion, and low scores on the predictor variable are associated with low values on the criterion (e.g., high SAT Writing scores with high course grades, and low SAT Writing scores with low course grades). A negative correlation indicates that high scores on the predictor variable are associated with low values on the criterion, and low scores on the predictor variable are associated with high values on the criterion (e.g., high SAT Writing scores with low course grades, and low SAT Writing scores with high course grades).

Percent correctly placed

Another way to measure the strength of prediction is to estimate the percentage of students "correctly placed" by the predictor. A student is considered to be "correctly placed" by the predictor if either: (1) it was predicted that the student would succeed, and he or she did succeed (e.g., the student earned a course grade of C or higher when C or higher was defined as a level of success), or (2) it was predicted that the student would not succeed, and he or she did not succeed (e.g., the student earned a course grade of D or lower). The analyses reported here predict that a student will succeed if the student's estimated probability of success is .50 or higher. Notice, however, that when nearly all of the students in the class succeed, a predictor can have a high success rate even if it correlates very poorly with the criterion. For example, if 95 percent of the students succeed in the course, and the predictor simply predicts that all students will succeed, the "% Correctly Placed" will be 95.

Composite predictor

Predictor variables do not have to be used individually. Two or more predictors can be used together to form a **composite predictor** that may be stronger than either of the individual predictor variables alone. A composite predictor is reported when the total number of students who have scores on all of the predictors is at least 10 times the total number of predictors but not less than 30.

If you elected to use more than one predictor variable, the composite predictor is calculated by multiplying each individual predictor by a number that indicates its weight, or strength, in the prediction. The weighted predictors are added together. The resulting number is then added to another number, called the "constant," to put all the composite predictors on the same number scale, which results in composite predictor scores between approximately -3 and +3. You requested more than one predictor variable; thus, this report may include one or more formulas (or models) that can be used to calculate a composite predictor.

Important points

The tables presented in this section show the correlations between the criterion and the individual predictor variables. When more than one predictor was analyzed, the correlations between the criterion and the composite predictors may also be shown. Comparing the correlations in these tables will help you decide which individual or composite predictor to use for placement purposes. In making this decision, you should avoid comparing statistics derived from groups of students that are very different from each other.

For example, a group of students with scores on one predictor, such as an SAT Subject Test™, may be very different from a group of students with scores on another predictor, such as a basic reading test. In most cases, you would expect the group of students with SAT Subject Test scores to be more proficient than those who are required to take a basic reading test. The difference between the correlations of these two predictors with the same criterion may be the result of the difference between the two groups.

In deciding which predictors to use, you have to balance the increase in accuracy that results from using an additional predictor against the cost of obtaining that information. Here are factors to keep in mind when making that decision:

- If the number of students in the sample is small, the correlation between a predictor variable and the criterion in the sample may be quite different from what it would be in another group of students, whether or not the number of students is the same or greater.
- Some predictor variables may be highly correlated with each other. If two predictors are highly correlated with each other, using them together may be only slightly better than using either of them individually.
- *A note about possible consequences of predictor variables which have been constructed from two or more variables that are highly correlated:*

  The ACES user should exercise caution when interpreting ACES study results that include highly correlated predictor variables (multicollinearity). The analyses performed by ACES are made with the assumption that the predictor variables are independent (uncorrelated); violating this assumption may result in less reliable model estimates. A typical situation where correlation of the predictor variables exists is when a constructed variable, such as an average or a sum of other predictors, is used as a predictor in the same analysis where any of the individual predictors comprising the constructed variable are also used.

The tables presented in this section show an estimate of "% Correctly Placed" for each separate predictor variable and for each composite predictor when more than one predictor variable is used in the analysis. The estimates shown are for the decisions that would be made if the only students placed in the course are those whose predicted probability of success on the criterion is at least .50. If there are insufficient data for a predictor variable, then the corresponding cells will be shaded, and that predictor variable will be left out of subsequent tables.

If you submitted more than one predictor variable, normally the ACES system will calculate a prediction equation for each possible combination of predictor variables for which there are sufficient data - i.e., the number of students in the sample with scores on all of the predictor variables and on the criterion variable must be at least 10 times the total number of predictors and at least 30. For each criterion variable, the system will print up to five prediction equations. If more than five combinations of predictors are possible, the system will print the five prediction equations that have the highest correlations between the composite predictor and the criterion variable.

An exception occurs when the correlation between the composite and the criterion variable is lower for the composite than for one of the predictors included in the composite. With the type of analysis used in the ACES Placement Validity Report, such an occurrence is possible. For example, the correlation of the composite of predictors X and Y with the criterion variable might actually be lower than the correlation for predictor X alone. In that case, the composite of predictors X and Y would not be reported.

Another exception occurs when the contribution of an individual predictor to the composite is in the opposite direction to its correlation with the criterion variable. For example, it is possible that predictor X could correlate positively with the criterion variable but take on a negative weight in the composite of X and Y. In such a case, the composite of predictors X and Y would not be reported.

Logistic Biserial Correlations* of Predictors with Success on the Criterion Criterion: Final Course Grade of C or Higher in Eng100 Using SAT Scores						
Predictor Variable(s)	Study Sample			Complete Data Sample		
	N	Logistic Biserial Correlation*	% Correctly Placed	N	Logistic Biserial Correlation*	% Correctly Placed
Individual Predictors						
SAT Critical Reading	492	0.18	69	492	0.18	69
SAT Writing	492	0.29	70	492	0.29	70
Composite Predictors						
Model Number 1	492	0.47	68	492	0.47	68
Model Number 1 includes SAT Critical Reading and SAT Writing						

*The logistic biserial correlation is a measure of the strength of association. It is related to a biserial correlation but has been modified to be consistent with logistic regression and has been adapted to single and multiple predictors.

Using the students in your study sample we see that:

- When used as individual predictors, all predictors place at least 69 percent of the students correctly.
- SAT Writing, with a value of 0.29, has the strongest measure of association with the criterion among the individual predictors.
- Of the individual predictors, SAT Writing, with a value of 70, has the highest percentage of students correctly placed.
- The composite predictor, Model Number 1, has a measure of association with the criterion of 0.47.
- The composite predictor, Model Number 1, places 68 percent of the students correctly.

Using the students in your complete data sample we see that:

- When used as individual predictors, all predictors place at least 69 percent of the students correctly.
- SAT Writing, with a value of 0.29, has the strongest measure of association with the criterion among the individual predictors.
- Of the individual predictors, SAT Writing, with a value of 70, has the highest percentage of students correctly placed.
- The composite predictor, Model Number 1, has a measure of association with the criterion of 0.47.
- The composite predictor, Model Number 1, places 68 percent of the students correctly.

Technical notes:

- A biserial correlation is a measure of the association between a dichotomous variable (one with only two possible values) and a variable with many possible values, such as a test score. For example, the dichotomous variable might be earning (or not earning) a course grade of at least C. The biserial correlation assumes that the dichotomous variable is a perfect indicator of some underlying continuous variable that is not measured directly. In this example, the underlying continuous variable would be quality of performance in the course. The biserial correlation is an estimate of the correlation of the many-valued variable (the test score) with that underlying continuous variable (quality of performance in the course).
- Biserial correlations computed from the scores of a small group of students or of a group that includes very few students who did not succeed on the criterion (or very few who succeeded) often will not generalize beyond that particular group of students.
- A logistic biserial correlation is a type of biserial correlation that has been modified to be consistent with logistic regression. It can also be used with multiple predictors; in that case, it is an estimate of the measure of association between the predictors

(e.g., scores on two or more tests) and the underlying continuous variable (quality of performance in the course) indicated by the dichotomous variable (a grade of C or better).

Logistic Biserial Correlations* of Predictors with Success on the Criterion Criterion: Final Course Grade of B or Higher in Eng100 Using SAT Scores						
Predictor Variable(s)	Study Sample			Complete Data Sample		
	N	Logistic Biserial Correlation*	% Correctly Placed	N	Logistic Biserial Correlation*	% Correctly Placed
Individual Predictors						
SAT Critical Reading	492	0.18	62	492	0.18	62
SAT Writing	492	0.21	63	492	0.21	63
Composite Predictors						
Model Number 1	492	0.50	70	492	0.50	70
Model Number 1 includes SAT Critical Reading and SAT Writing						

*The logistic biserial correlation is a measure of the strength of association. It is related to a biserial correlation but has been modified to be consistent with logistic regression and has been adapted to single and multiple predictors.

Using the students in your study sample we see that:

- When used as individual predictors, all predictors place at least 62 percent of the students correctly.
- SAT Writing, with a value of 0.21, has the strongest measure of association with the criterion among the individual predictors.
- Of the individual predictors, SAT Writing, with a value of 63, has the highest percentage of students correctly placed.
- The composite predictor, Model Number 1, has a measure of association with the criterion of 0.50.
- The composite predictor, Model Number 1, places 70 percent of the students correctly.

Using the students in your complete data sample we see that:

- When used as individual predictors, all predictors place at least 62 percent of the students correctly.
- SAT Writing, with a value of 0.21, has the strongest measure of association with the criterion among the individual predictors.
- Of the individual predictors, SAT Writing, with a value of 63, has the highest percentage of students correctly placed.
- The composite predictor, Model Number 1, has a measure of association with the criterion of 0.50.
- The composite predictor, Model Number 1, places 70 percent of the students correctly.

Technical notes:

- A biserial correlation is a measure of the association between a dichotomous variable (one with only two possible values) and a variable with many possible values, such as a test score. For example, the dichotomous variable might be earning (or not earning) a course grade of at least B. The biserial correlation assumes that the dichotomous variable is a perfect indicator of some underlying continuous variable that is not measured directly. In this example, the underlying continuous variable would be quality of performance in the course. The biserial correlation is an estimate of the correlation of the many-valued variable (the test score) with that underlying continuous variable (quality of performance in the course).
- Biserial correlations computed from the scores of a small group of students or of a group that includes very few students who did not succeed on the criterion (or very few who succeeded) often will not generalize beyond that particular group of students.
- A logistic biserial correlation is a type of biserial correlation that has been modified to be consistent with logistic regression. It can also be used with multiple predictors; in that case, it is an estimate of the measure of association between the predictors

(e.g., scores on two or more tests) and the underlying continuous variable (quality of performance in the course) indicated by the dichotomous variable (a grade of B or better).

Likewise, the following tables can be used to examine the strength of the relationship between the predictor(s) and criterion for the other course(s) in your study.

Logistic Biserial Correlations* of Predictors with Success on the Criterion Criterion: Final Course Grade of C or Higher in Eng211 Using SAT Scores						
Predictor Variable(s)	Study Sample			Complete Data Sample		
	N	Logistic Biserial Correlation*	% Correctly Placed	N	Logistic Biserial Correlation*	% Correctly Placed
Individual Predictors						
SAT Critical Reading	282	0.19	68	277	0.19	67
SAT Writing	282	0.25	68	277	0.25	68
Composition	277	0.25	65	277	0.27	66
Composite Predictors						
Model Number 1	282	0.57	77	277	0.56	76
Model Number 2	277	0.55	77	277	0.55	77
Model Number 1 includes SAT Critical Reading and SAT Writing Model Number 2 includes SAT Critical Reading and Composition						

*The logistic biserial correlation is a measure of the strength of association. It is related to a biserial correlation but has been modified to be consistent with logistic regression and has been adapted to single and multiple predictors.

Technical notes:

- A biserial correlation is a measure of the association between a dichotomous variable (one with only two possible values) and a variable with many possible values, such as a test score. For example, the dichotomous variable might be earning (or not earning) a course grade of at least C. The biserial correlation assumes that the dichotomous variable is a perfect indicator of some underlying continuous variable that is not measured directly. In this example, the underlying continuous variable would be quality of performance in the course. The biserial correlation is an estimate of the correlation of the many-valued variable (the test score) with that underlying continuous variable (quality of performance in the course).
- Biserial correlations computed from the scores of a small group of students or of a group that includes very few students who did not succeed on the criterion (or very few who succeeded) often will not generalize beyond that particular group of students.
- A logistic biserial correlation is a type of biserial correlation that has been modified to be consistent with logistic regression. It can also be used with multiple predictors; in that case, it is an estimate of the measure of association between the predictors (e.g., scores on two or more tests) and the underlying continuous variable (quality of performance in the course) indicated by the dichotomous variable (a grade of C or better).

Logistic Biserial Correlations* of Predictors with Success on the Criterion Criterion: Final Course Grade of B or Higher in Eng211 Using SAT Scores						
Predictor Variable(s)	Study Sample			Complete Data Sample		
	N	Logistic Biserial Correlation*	% Correctly Placed	N	Logistic Biserial Correlation*	% Correctly Placed
Individual Predictors						
SAT Critical Reading	282	0.24	65	277	0.22	62
SAT Writing	282	0.30	67	277	0.31	66
Composition	277	0.25	65	277	0.26	63
Composite Predictors						
Model Number 1	277	0.60	76	277	0.60	76
Model Number 2	277	0.59	75	277	0.59	75
Model Number 3	277	0.57	77	277	0.56	77
Model Number 1 includes SAT Critical Reading, SAT Writing, and Composition Model Number 2 includes SAT Critical Reading and Composition Model Number 3 includes SAT Writing and Composition						

*The logistic biserial correlation is a measure of the strength of association. It is related to a biserial correlation but has been modified to be consistent with logistic regression and has been adapted to single and multiple predictors.

Technical notes:

- A biserial correlation is a measure of the association between a dichotomous variable (one with only two possible values) and a variable with many possible values, such as a test score. For example, the dichotomous variable might be earning (or not earning) a course grade of at least B. The biserial correlation assumes that the dichotomous variable is a perfect indicator of some underlying continuous variable that is not measured directly. In this example, the underlying continuous variable would be quality of performance in the course. The biserial correlation is an estimate of the correlation of the many-valued variable (the test score) with that underlying continuous variable (quality of performance in the course).
- Biserial correlations computed from the scores of a small group of students or of a group that includes very few students who did not succeed on the criterion (or very few who succeeded) often will not generalize beyond that particular group of students.
- A logistic biserial correlation is a type of biserial correlation that has been modified to be consistent with logistic regression. It can also be used with multiple predictors; in that case, it is an estimate of the measure of association between the predictors (e.g., scores on two or more tests) and the underlying continuous variable (quality of performance in the course) indicated by the dichotomous variable (a grade of B or better).

Section 4: Deciding what probability of success to require for placement into a course

In determining whether to place a student into a course, there are two types of **correct** decisions:

- Placing a student into a course where the student eventually succeeds, or
- Denying placement into a course to a student who would not have succeeded.

Similarly, there are two types of **incorrect** decisions:

- Placing a student who will not succeed into a course, or
- Denying placement into a course to a student who would have succeeded.

If you wish to make as many correct placement decisions and as few incorrect decisions as possible, there is a simple way to achieve this goal: place into a course all those students, and only those students, whose estimated probability of success is .50 or higher. However, this simple solution may not be the best choice for all placement situations. In some cases, it may be wise to tolerate more incorrect decisions of one type in order to make fewer incorrect decisions of the other type.

For example, if a course is expensive in terms of resources required by each student, you may want to place only those students whose probability of success is substantially higher than .50. In these situations, you may want to require a probability of success of at least .67 (two out of three students placed into the course are likely to succeed) or .75 (three out of four students placed are likely to succeed) or possibly higher.

In situations where the consequences of not being successful in the course (as defined in this report) are not severe, you may want to place into the course some students with a lower probability of success. For example, a first-year English composition course may be of substantial benefit even to students who do not earn a grade that is considered successful. In these cases, you may want to place students whose estimated probability of success is somewhat lower than .50.

Prediction involves uncertainty. In this section, the probability estimates and cut scores presented in the tables show you how much uncertainty there is for various cut scores. If the probability of success is very low or very high, there is little uncertainty in the decision. A probability of success near .50 carries a great deal of uncertainty, particularly when sample sizes are small. Remember that there will always be some level of uncertainty in predicting students' success in college courses. Using the information in this report will improve your predictions but will not enable you to predict correctly for all students.

Tables in this section contain the probability of success associated with various cut scores in each course for which you requested a placement report. Each row of the table corresponds to a specific probability of success on the criterion. This report defines two levels of success:

- A grade of C or higher, or
- A grade of B or higher.

There is one table for each of these levels of success for each course you requested. The tables contain a column for each individual predictor variable with sufficient data. If you elected to use more than one predictor variable for a course, the tables may also contain another column for the composite predictor. Cut scores in this composite predictor column typically fall in the range of -3 to +3. The formula(s) for the composite predictor is(are) listed below the table. Which predictor(s) you use to make a prediction for an individual student will depend upon which of the student's scores you decide to use after reviewing Section 3 of this report.

All tables in this section are based on your **study sample**. In general, this sample has the larger number of students, which provides the most stable probability and cut score estimates.

Shaded areas of the table indicate success probabilities that correspond to scores above the maximum possible score or below the minimum possible score for that predictor. If the space for .95 is shaded, even a student with the highest possible score on the predictor would have less than a .95 probability of success. If the space for .05 is shaded, even the student with the lowest possible score on the predictor would have more than a .05 probability of success. If the probability that you are interested in has a shaded cut score value, then use the closest probability with a non-shaded cut score.

Technical note:

A large number of shaded cells, particularly around the probability in which you are interested, or an entire column of shaded cells indicates incompatibilities between your data and the statistical methods used in ACES placement studies. This may result from the statistical model fitting your data poorly. Such an outcome can occur for many reasons; some of the more common ones include a lack of sufficient number of grades above or below the specified level of success for the analysis, and/or a negative correlation between the predictor in question and the course grade used to determine the level of success indicated in the table. For help in interpreting the results of your study, please contact the ACES staff at aces@info.collegeboard.org.

Cut Scores Associated with Predicted Probability of Success Criterion: Final Course Grade of C or Higher in Eng100 Using SAT Scores			
Probability of Success	SAT Critical Reading Only	SAT Writing Only	Composite Predictor
0.95			2.94
0.90	791		2.20
0.85	692	750	1.73
0.80	621	649	1.39
0.75	556	570	1.10
0.70	492	512	0.85
0.65	443	476	0.62
0.60	390	416	0.41
0.55	345	370	0.20
0.50	300	327	0.00
0.45	256	268	-0.20
0.40	211	227	-0.41
0.35			-0.62
0.30			-0.85
0.25			-1.10
0.20			-1.39
0.15			-1.73
0.10			-2.20
0.05			-2.94
The following model(s) can be used to calculate the composite predictor shown in the table above. Model Number 1 = -4.23677 + (0.00565) × SAT Critical Reading + (0.00625) × SAT Writing			

Using the probability table above:

Suppose you want to set the probability of success in Eng100 (considering your criterion is a grade of C or higher) at 0.50. That is, you will place a student into Eng100 if a student's value(s) on available predictors is(are) at or above the cut point(s) corresponding to a probability of success of 0.50. If the only academic measure you have for a student is the SAT Writing score, you would place that student into Eng100 if the student scored 327 or greater on SAT Writing. If the student scored below 327, you would not place that student into Eng100.

If you decide to use a composite predictor to predict placement into Eng100 (using a grade of C or higher as a level of success), then the composite predictor cut score of 0.00 corresponds to a probability of success of 0.50. You can obtain this by reading down the column labeled "Probability of Success" to 0.50 and then reading across to the last column labeled "Composite Predictor". If you want to use more than one measure to determine whether or not to place a student into the course, use the formula at the bottom of the table to compute a composite predictor score. When more than one predictor is used for placement decisions, there are various combinations of predictors that will result in a decision to place a student into the course. Use the model equation(s) at the bottom of the table to determine if a student should be placed in the course.

The following tables of cut scores and associated predicted probabilities can be used to derive an estimated probability of success for students in the course and level of success indicated in the tables.

Cut Scores Associated with Predicted Probability of Success
Criterion: Final Course Grade of B or Higher in Eng100
Using SAT Scores

Probability of Success	SAT Critical Reading Only	SAT Writing Only	Composite Predictor
0.95			2.94
0.90			2.20
0.85			1.73
0.80			1.39
0.75	773	777	1.10
0.70	721	729	0.85
0.65	682	682	0.62
0.60	633	641	0.41
0.55	598	600	0.20
0.50	559	555	0.00
0.45	520	520	-0.20
0.40	481	477	-0.41
0.35	436	434	-0.62
0.30	396	400	-0.85
0.25	347	339	-1.10
0.20	292	291	-1.39
0.15	225	222	-1.73
0.10			-2.20
0.05			-2.94

The following model(s) can be used to calculate the composite predictor shown in the table above.

Model Number 1 = -4.58532 + (0.00419) × SAT Critical Reading + (0.00509) × SAT Writing

Cut Scores Associated with Predicted Probability of Success
Criterion: Final Course Grade of C or Higher in Eng211
Using SAT Scores

Probability of Success	SAT Critical Reading Only	SAT Writing Only	Composition Only	Composite Predictor
0.95			83	2.94
0.90	777	773	67	2.20
0.85	690	700	58	1.73
0.80	626	633	51	1.39
0.75	572	581	45	1.10
0.70	521	520	40	0.85
0.65	483	490	32	0.62
0.60	443	447	31	0.41
0.55	405	406	27	0.20
0.50	366	360	22	0.00
0.45	330	325	18	-0.20
0.40	292	296	14	-0.41
0.35	250	252	10	-0.62
0.30	210	205	5	-0.85
0.25				-1.10
0.20				-1.39
0.15				-1.73
0.10				-2.20
0.05				-2.94

The following model(s) can be used to calculate the composite predictor shown in the table above.

Model Number 1 = -2.38916 + (0.00232) × SAT Critical Reading + (0.00249) × SAT Writing

Model Number 2 = -1.69337 + (0.00423) × SAT Critical Reading + (0.00466) × Composition

Cut Scores Associated with Predicted Probability of Success
Criterion: Final Course Grade of B or Higher in Eng211
Using SAT Scores

Probability of Success	SAT Critical Reading Only	SAT Writing Only	Composition Only	Composite Predictor
0.95				2.94
0.90			98	2.20
0.85			89	1.73
0.80	797	791	81	1.39
0.75	757	746	75	1.10
0.70	726	712	70	0.85
0.65	690	686	65	0.62
0.60	660	646	61	0.41
0.55	631	621	54	0.20
0.50	603	582	53	0.00
0.45	572	562	48	-0.20
0.40	546	540	44	-0.41
0.35	516	511	37	-0.62
0.30	485	484	35	-0.85
0.25	449	446	30	-1.10
0.20	409	400	24	-1.39
0.15	360	365	17	-1.73
0.10	296	300	7	-2.20
0.05		205		-2.94

The following model(s) can be used to calculate the composite predictor shown in the table above.

Model Number 1 = -4.18378 + (0.00169) × SAT Critical Reading + (0.00295) × SAT Writing + (0.02776) × Composition

Model Number 2 = -3.05240 + (0.00242) × SAT Critical Reading + (0.02463) × Composition

Model Number 3 = -3.60620 + (0.00382) × SAT Writing + (0.02929) × Composition

Section 5: Following up on your placement decisions

It is important to review the results of your placement decisions. *The Code of Fair Test Practices in Education*, prepared by the Joint Council on Testing Practices, asks that test-users follow up such decisions with two actions:

- Explain how passing scores were set.
- Gather evidence to support the appropriateness of the cut scores.

Copies of *The Code of Fair Test Practices in Education* can be obtained from the National Council on Measurement in Education, 1230 17th Street NW, Washington, D.C. 20036.

This report provides much of the documentation needed to explain how the cut scores were set. It is important, however, to document the decisions required when interpreting the report and making the final cut score decision. Your documentation should explain the criterion used for the predicted probability of success tables.

While every attempt has been made to give accurate and complete information, the decisions made at each step of the process, such as the ability of the results to be generalized, the set of predictor variables used, and so on, can only be made with the information available. Sometimes the results of a placement study, despite the best intentions of all parties involved, have unintended or unexpected results. It is important to collect information on the effects of your placement decisions so that any unexpected consequences can be identified and remedied. Such information might include the proportion of test-takers who pass the course, the characteristics of students who take placement tests as opposed to entering the course after the prerequisite course(s), and pass/fail results for selected groups of test-takers.

The ACES staff is available to assist you with any questions you may have about your study. In addition, the complete statistical output is available on request. To contact the ACES staff:

- Call 609 683-2255, or
- E-mail aces@info.collegeboard.org.

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