OKLAHOMA STATE DEPARTMENT OF EDUCATION

Janet Barresi, State Superintendent of Public Instruction

Oklahoma School Testing Program
Oklahoma Core Curriculum Tests

End-of-Instruction Assessments
2013–2014 Technical Report

FINAL

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Acronyms and Abbreviations

2PPC Two Parameter Partial Credit model
3PL Three Parameter Logistic model
ACE Achieving Classroom Excellence
AERA American Educational Research Association
APA American Psychological Association
AYP Adequate Yearly Progress
BR Braille
BTC Building Test Coordinator
C^3 Oklahoma's Core curriculum, the College, Career and Citizen Ready
CCSSO Council of Chief State School Officers
CE Critical Element
CFA Confirmatory Factor Analysis
CR Constructed-Response
CSEM Conditional Standard Error of Measurement
DIF Differential Item Functioning
DOK Depth of Knowledge
DTC District Test Coordinator
EFA Exploratory Factor Analysis
EHS Electronic Handscoring System
ELL English Language Learners
EOI End-of-Instruction
EQ Equivalent
FN False Negative
FP False Positive
GRT General Research Tape
HOSS Highest Obtainable Scale Score
ICC Item Characteristic Curve
IEP Individualized Education Program
IRT Item Response Theory
LIU Language in Use
LOSS Lowest Obtainable Scale Score
MC Multiple-Choice
MH Mantel-Haenszel
NCES National Center for Education Statistics
NCLB No Child Left Behind
NCME National Council on Measurement in Education
NGA National Governors Association Center
OAAP Oklahoma Alternate Assessment Program
OAC Oklahoma Administrative Code
OAS Oklahoma Academic Standards
OCCT Oklahoma Core Curriculum Tests
OE Open-Ended
OMAAP Oklahoma Modified Alternate Assessment Program
OP Operational
OSTP Oklahoma School Testing Program
PASS Priority Academic Student Skills
RIBs Rater Item Blocks
RT Retest
SAS Statistical Analysis System
SD Standard Deviation
SDE Oklahoma State Department of Education
SEM Standard Error of Measurement
SS Scale Score
TA Test Administrator
TAC Technical Advisory Committee
TCC Test Characteristic Curve
TP Test Proctor
TPM Test Preparation Manual
US DOE United States Department of Education
WP Writing Prompt

Introduction

This report summarizes the research data analyses conducted on the Oklahoma Core Curriculum Tests End-of-Instruction (OCCT EOI) 2013–2014 test administrations and provides data evidences in support of the test validity and reliability of the tests.

The Oklahoma School Testing Program (OSTP) was established to improve academic achievement for all Oklahoma students, and it also meets the requirements of the No Child Left Behind (NCLB) Act (US DOE, 2002), which was introduced by the Federal Government in 2001. The OSTP is a statewide assessment program that, in an attempt to meet the needs of the students of the State of Oklahoma, encompasses three different assessment types—the Oklahoma Core Curriculum Test (OCCT), intended for regular education students; the Oklahoma Modified Alternate Assessment Program (OMAAP), referred to as the modified test and intended for most students enrolled in an Individual Education Program (IEP) or a 504 Plan, as well as for English Language Learners (ELL); and the Oklahoma Alternate Assessment Program (OAAP), the portfolio assessment for students with the most severe cognitive disabilities in the IEP programs.

The Oklahoma state tests are used to assess student achievement; target student, classroom, and program improvement; and inform parents of student progress. The administration of the OCCT, OMAAP, and OAAP tests fulfills the NCLB Act and state mandates for testing Mathematics and Reading and the test results are used for federal accountability. The scope and general administration of the OSTP is outlined in state law, 70 O.S. § 1210.505. Rules that govern the specifics of test administration and other details are available under Oklahoma Administrative Code (OAC) 210:10-13.

For the OCCT, Reading and Mathematics tests are administered in grades 3–8; Science, Social Studies, and Writing tests are given in Grade 5; Geography is given in Grade 7; and Science, U.S. History, and Writing are given in Grade 8. English II, English III, Algebra I, Algebra II, Geometry, Biology I, and U.S. History are given as EOI tests in high school. For the OMAAP, English II, Algebra I, Biology I, and U.S. History are available as EOI tests in high school. All students must take the OCCT for content areas in which a modified assessment is not available. The Department of Special Education oversees the implementation of the OAAP, or portfolio assessment, which includes all of the grades 3–8 content areas and EOI for Algebra I, Algebra II, Biology I, Geometry, U.S. History, English II, and English III based on the grade level of the student.

This document serves to provide detailed descriptions and evidence of reliability and validity of the OCCT EOI, a component of the Oklahoma assessment system. The validity evidence is reflected in the work done by the Oklahoma State Department of Education (SDE) and in the process of the OCCT development. The validity evidence of OCCT can be found in the development of the *Priority Academic Student Skills (PASS)*, most recently the Oklahoma Academic Standards (OAS), the development of the OSTP items and operational test form, the review of the alignment of the content to the test, the administrations of the test, the machine

scoring and handscoring of student responses, the setting of cut scores, and the psychometric analyses (Barton, 2007).

Because the OCCT results are used as part of the state and federal accountability system, McGraw-Hill Education CTB follows the *Standards for Educational and Psychological Testing* (1999) by the American Educational Research Association (AERA), the American Psychological Association (APA), and the National Council of Measurement in Education (NCME). This technical report presents validity and reliability evidence according to the *Standards for Educational and Psychological Testing*. Attention is also given to requirements from the *Standards and Assessment Peer Review Guidance* (US DOE, 2004) and the Critical Elements (CE) for Peer Review of State summative tests. The detailed documentation is provided in the following sections of this report.

Section 1—Overview

The Oklahoma End-of-Instruction (EOI) assessments require that students who complete an area of instruction must also take the corresponding standardized test. Each test has the purpose of measuring each student's knowledge relative to the Oklahoma Academic Standards (OAS), Oklahoma's content standards. These tests are part of the Achieving Classroom Excellence (ACE) legislation passed in 2005 and amended in 2006, which outlines the curriculum, the competencies, and the testing requirements for students to receive a high school diploma from the State of Oklahoma. Algebra I, English II, Biology I, and U.S. History were existing tests in the program with Algebra II, Geometry, and English III added as operational tests for the 2007–2008 testing cycle. The Spring 2009 administration was the first administration with graduation requirements attached to them for the incoming freshmen students. In order to graduate with a high school diploma from the State of Oklahoma, these students, as well as future incoming freshmen students, are required to score proficient or above on the standardized test assessments for Algebra I and English II, as well as score proficient or above in two of the following five standardized test assessments: Algebra II, Biology I, English III, Geometry, and U.S. History. Students who fail to earn a proficient score are permitted to retake these tests.

All Oklahoma secondary-level students, enrolled in a regular education program and completing instruction in Algebra I, Algebra II, Biology I, Geometry, English II, English III, and U.S. History, must take the corresponding OCCT EOI tests. The OCCT EOI tests are administered mainly online, with the exception of the writing prompt (WP) in English II and English III, which are administered in a paper/pencil format for the operational and equivalent forms and in an online format for the retest form. All EOI testing administrations have one WP for English II and English III for 2013–2014. These EOI standardized assessment tests are administered in Winter/Trimester, Spring, and Summer including form variations other than operational (OP), as braille (BR), retest (RT), and equivalent (EQ) forms.

In the Fall of 2012, McGraw-Hill Education CTB was contracted by the Oklahoma SDE to develop, administer, and maintain the OSTP OCCT and OMAAP for ACE EOI and grades 3–8. This technical report provides objective information regarding technical aspects of the Oklahoma OCCT EOI assessments by specifying the technical details of the work accomplished from Summer 2013 through the end of Spring 2014 on these tests. This volume is intended to be one source of information for Oklahoma K-12 educational stakeholders (including testing coordinators, educators, parents, and other interested citizens) about the development, implementation, scoring, and technical attributes of the Oklahoma OCCT EOI assessments.

Other sources of information regarding the OSTP-ACE EOI tests include the administration manual *OSTP 2013–2014 Test Preparation Manual* found at http://ok.gov/sde/sites/ok.gov.sde/files/documents/files/2705543-W_tpm_w13OK.pdf; interpretation manuals, implementation materials, and training materials for administrators, schools, and teachers found at http://www.ok.gov/sde/test-support-teachers-and-administrators;

and guides for teachers, students, and parents found at http://ok.gov/sde/assessment-administrator-resources-administrators.

The Summer 2013 OCCT EOI assessments for Algebra I, Algebra II, Biology I, Geometry, English II, English III, and U.S. History were developed by McGraw-Hill Education CTB in collaboration with the Oklahoma SDE and were administered by the SDE. The Winter/Trimester 2013–14 and the Spring 2014 OCCT EOI for Algebra I, Algebra II, Biology I, Geometry, English II, English III, and U.S. History assessments were developed by McGraw-Hill Education CTB in collaboration with the SDE and were administered by the SDE.

Section 1.1—Purpose

This report includes data and analysis results on the operational forms in the Summer of 2013, Winter/Trimester 2013–14, and Spring 2014 administrations. A description of the Oklahoma content standards is provided in **Section 1.2—Oklahoma Academic Standards**. All operational and field test items for the OCCT EOI Winter/Trimester 2013–14 and Spring 2014 were subjected to cycles of reviews by the SDE and McGraw-Hill Education CTB. The item development and alignment process and test development are detailed in **Section 2—Item and Test Development**. The test administrations processes can be found in **Section 3—Administration**. Discussion of the operational population and the research samples utilized in the analysis is found in **Section 5—Sampling Plan & Field Test Design**. Note that relevant information from the Summer 2013 administration is occasionally shown in these sections but is not the subject of McGraw-Hill Education CTB's analysis in this report.

The Summer 2013 OCCT EOI scores were based on a pre-equating design for all content areas. The Winter/Trimester 2013–14 OCCT EOI scores were mostly based on a pre-equating design, where full post-equating analyses were only conducted for U.S. History, English II, and English III to assure comparability and stability of the pre- and post-equating results. The Spring 2014 OCCT EOI scores were based on a pre-equating design for Algebra I, Algebra II, and Geometry, where full post-equating analyses were conducted for Biology I, English II, English III, and U.S. History. The Winter/Trimester 2013–14 and Spring 2014 OCCT EOI operational and field test items were analyzed and processed separately. A complete description of the operational and field test item analyses and the calibration/scaling and equating analyses is found in **Section 6—Methods** and **Section 7—Results**. A summary of reliability and validity for different levels of analyses is found in **Section 8—Summary of Reliability & Validity**.

Section 1.2—Oklahoma Academic Standards

McGraw-Hill Education CTB developed the Winter/Trimester 2013–14 and the Spring 2014 Oklahoma OCCT EOI assessments to measure the Oklahoma Academic Standards, which are shown in Table 1. The objectives associated with the content and/or process standards tested are provided in **Appendix A**.

Table 1. Oklahoma Content Standards by Subject

Algebra I	
Standard 1.	Number Sense and Algebraic Operations
Standard 2.	Relations and Functions
Standard 3.	Data Analysis, Probability & Statistics
Algebra II	
Standard 1.	Number Sense and Algebraic Operations
Standard 2.	Relations and Functions
Standard 3.	Data Analysis, Probability & Statistics
Geometry	
Standard 1.	Logical Reasoning
Standard 2.	Properties of 2-Dimensional Figures
Standard 3.	Triangles and Trigonometric Ratios
Standard 4.	Properties of 3-Dimensional Figures
Standard 5.	Coordinate Geometry
Biology I	
Process/Inquiry Standards and Objectives:	
Process 1.	Observe and Measure
Process 2.	Classify
Process 3.	Experiment
Process 4.	Interpret and Communicate
Process 5.	Model
Content Standards and Objectives:	
Standard 1.	The Cell
Standard 2.	The Molecular Basis of Heredity
Standard 3.	Biological Diversity
Standard 4.	The Interdependence of Organisms
Standard 5.	Matter/Energy/Organization in Living Systems
English II	
Reading/Literature:	
Standard 1.	Vocabulary
Standard 2.	Comprehension
Standard 3.	Literature
Standard 4.	Research and Information
Writing/Grammar/Usage and Mechanics:	
Standards 1/2.	Writing (Writing Prompt)
Standard 3.	Grammar/Usage and Mechanics

Table 1. Oklahoma Content Standards by Subject *(continued)*

English III	
Reading/Literature:	
Standard 1.	Vocabulary
Standard 2.	Comprehension
Standard 3.	Literature
Standard 4.	Research and Information
Writing/Grammar/Usage and Mechanics:	
Standard 1/2.	Writing (Writing Prompt)
Standard 3.	Grammar/Usage and Mechanics
U.S. History	
Standard 1.	Post-Reconstruction to the Progressive Era, 1878–1900
Standard 2.	Expanding Role of the United States in International Affairs
Standard 3.	Cycles of Economic Boom and Bust in the 1920s and 1930s
Standard 4.	Role of the U.S. in International Affairs and World War II, 1933–1946
Standard 5.	U.S. Foreign and Domestic Policies during the Cold War, 1945–1975

Section 2—Item and Test Development

In the Summer 2013 and Winter/Trimester 2013–2014 administrations, there was one operational form with embedded sets of field test items for the tests administered for Algebra I, Algebra II, Geometry, English II, English III, Biology I, and U.S. History. In the Spring 2014 administration, there were two core operational forms (A, B) and each form was embedded with sets of field test items to add to the item pool. This resulted in seven embedded field test forms for Algebra I, Algebra II, and Geometry; ten embedded field test forms for English II and English III; six standalone field test forms for English II and English III; six embedded field test forms for Biology I; and ten embedded field test forms for U.S. History. For each administration, a braille form, an equivalent form, and a retest form are produced.

The braille form is usually a mirror of the operational form; however, the Winter/Trimester 2013–2014 braille form was a mirror of the Spring 2013 operational form. The equivalent, designated as a breach form, and the retest forms usually are reproductions of past administration forms, except for the open-ended items or writing prompts. A student could receive an equivalent form for various reasons, such as becoming ill during a test administration or experiencing any kind of security breach. The Oklahoma State Department of Education Office of Accountability and Assessments determines eligibility for an equivalent form on a case-by-case basis.

Test Design

For Summer 2013 and Winter/Trimester 2013–2014, McGraw-Hill Education CTB Content Development selected repurposed forms approved by the SDE for operational use. CTB Research analyzed the selected forms and provided feedback to CTB Content Development regarding item position. Adjustments were made by Content Development based on Research feedback. For Spring 2014, Content Development selected items from the available item pools that had been field tested previously and approved by the SDE staff for usage on operational assessments. Field test items were selected from items approved by the SDE and Oklahoma teachers. CTB Research analyzed the selected items and provided feedback to Content Development regarding the best set of items for the Spring 2014 operational form.

Specifically, Research reviewed the forms for comparability of blueprints; total test information; cut score test information; standard errors of measurement; raw score to scale score stability (particularly at the cut scores); item locations (difficulty parameters) for all items within a form and item information levels; and test characteristic curves (TCCs) for each form selected compared to a reference form, the Spring 2012 operational form.

Table 2 to Table 4 provide overviews of the number of operational and field test items that composed the Summer 2013, Winter/Trimester 2013–14, and Spring 2014 OCCT EOI assessments. The Summer 2013 and Winter/Trimester 2013–14 tests were composed of one core operationally scored form for each subject. Field test items were embedded in the operational test for all content areas. The Spring 2014 test was composed of two core operational forms

(A, B) for each subject. Field test items were embedded in the operational test forms for all content areas to build the item bank for future use. Algebra I, Algebra II, Geometry, English II, and English III also had standalone forms that contained only field test items. The forms in the Spring 2014 assessments were randomly assigned within classrooms to obtain randomly-equivalent samples of examinees for the field test items. Although most items were unique to each form, approximately 17 items were common across the core forms. The number of common linking items per subject is presented in Table 5.

Table 2. Configuration of the OCCT EOI Tests for Summer 2013

					Maximum Possible Points on Test Items (Per Form)			
		Item Counts (Per Form)			OP		FT	
Subject	Forms	OP	FT	Test	MC	OE	MC	OE
Algebra I	1	55	10	65	55	.	10	.
Algebra II	1	55	10	65	55	.	10	.
Biology I	1	59	16	75	59	.	16	.
English II	1	61	15	76	60	6	15	.
English III	1	63	15	78	62	10	15	.
Geometry	1	55	10	65	55	.	10	.
U.S. History	1	60	10	70	60	.	10	.

Note: OP = Operational; FT = Field Test; MC = Multiple-Choice; OE = Open-Ended

Table 3. Configuration of the OCCT EOI Tests for Winter/Trimester 2013–14

					Maximum Possible Points on Test Items (Per Form)			
		Item Counts (Per Form)			OP		FT	
Subject	Forms	OP	FT	Test	MC	OE	MC	OE
Algebra I	1	55	10	65	55	.	10	.
Algebra II	1	55	10	65	55	.	10	.
Biology I	1	60	15	75	60	.	15	.
English II	1	60*	14	74	59	6	14	.
English III	1	63	15	78	62	10	15	.
Geometry	1	55	10	65	55	.	10	.
U.S. History	1	60	10	70	60	.	10	.

Note: OP = Operational; FT = Field Test; MC = Multiple-Choice; OE = Open-Ended

* English II has one suppressed OP item and one suppressed FT item, reducing the total possible points to 65.

Table 4. Configuration of the OCCT EOI Tests for Spring 2014

					Maximum Possible Points on Test Items (Per Form)			
		Item Counts (Per Form)			OP		FT	
Subject	Forms	OP	FT	Test	MC	OE	MC*	OE
Algebra I	7	55	14–16	69–71	55	.	13	5–9
Algebra I*	7	.	12–14	.	.	.	9–18	13–18
Algebra II	7	55	14–16	69–71	55	.	13	5–9
Algebra II*	7	.	12–14	.	.	.	9–18	13–18
Biology I	6	60	15	75	60	.	15	.
English II	10	61	17–18	78–79	60	6	15–16	4
English II*	6	.	3	.	.	.	2	4
English III	10	63	17–22	80–85	62	10	15–20	4
English III*	6	.	3	.	.	.	2	4
Geometry	7	55	14–16	69–71	55	.	13	5–9
Geometry*	7	.	12–14	.	.	.	9–18	13–18
U.S. History	10	60	15	75	60	.	15	.

Note: OP = Operational; FT = Field Test; MC = Multiple-Choice; OE = Open-Ended; * Standalone field test forms.

Table 5. Number of Common Linking Items per Subject for Spring 2014

Subject	No. of CL Items	Total No. of Items*
Algebra I	17	38
Algebra II	17	38
Biology I	17	43
English II	17	43
English III	17	46
Geometry	17	38
U.S. History	43	17

Note: CL = Common Linking
* Number of unique operational items per form.

Section 2.1—Aligning Test to Oklahoma Academic Standards

In general, alignment is a process that provides experts the opportunity to make item level judgments about the grade level, standards, and indicators to which items should be aligned. There are multiple points in the alignment process at which assessment items are either created or evaluated for alignment to content. Most tests, particularly high-stakes, large-scale assessments, are built via rigorous and well-researched methodologies. They are guided by well-defined content and by the boundaries within the content that can be reasonably assessed in a testing environment. Such guidance is typically in the form of item specifications and test

blueprints. The item specifications help define which content standards can be assessed by a test (and which content standards are better assessed in the classroom), the breadth and depth of the content that may be limited for the test, and the format and types of items appropriate for the content being assessed (e.g., multiple-choice or open-ended item). The test blueprint defines the proportion of the content to be covered on the test that best reflects the proportional importance and coverage of the standards in the classroom.

A list of the assessable standards for each subject is provided in Table 6 for Algebra I, Algebra II, Geometry, English II, English III, Biology I, and U.S. History. In addition to the test blueprints provided by the SDE, Table 7 describes four criteria for test alignment with the Oklahoma Academic Standards and objectives.

Table 6. Testable Standards for OCCT EOI

Algebra I	
Standard 1.	Number Sense and Algebraic Operations
Standard 2.	Relations and Functions
Standard 3.	Data Analysis, Probability & Statistics
Algebra II	
Standard 1.	Number Sense and Algebraic Operations
Standard 2.	Relations and Functions
Standard 3.	Data Analysis, Probability & Statistics
Geometry	
Standard 1.	Logical Reasoning
Standard 2.	Properties of 2-Dimensional Figures
Standard 3.	Triangles and Trigonometric Ratios
Standard 4.	Properties of 3-Dimensional Figures
Standard 5.	Coordinate Geometry
English II	
Reading/Literature	
Standard 1.	Vocabulary
Standard 2.	Comprehension
Standard 3.	Literature
Standard 4.	Research and Information
Writing/Grammar/Usage/Mechanics	
Standards 1. and 2.	Writing
Standard 3.	Grammar/Usage and Mechanics

Table 6. Testable Standards for OCCT EOI

English III	
Reading/Literature	
Standard 1.	Vocabulary
Standard 2.	Comprehension
Standard 3.	Literature
Standard 4.	Research and Information
Writing/Grammar/Usage/Mechanics	
Standard 1. and 2.	Writing
Standard 3.	Grammar/Usage and Mechanics
Biology I	
Standard 1.	The Cell
Standard 2	The Molecular Basis of Heredity
Standard 3.	Biological Diversity
Standard 4.	The Interdependence of Organisms
Standard 5.	Matter/Energy/Organization in Living Systems
Process 1.	Observe and Measure
Process 2.	Classify
Process 3.	Experimental Design
Process 4.	Interpret and Communicate
Process 5.	Model
U.S. History	
Standard 1.	Transformation of the United States from Post-Reconstruction to the Progressive Era, 1878–1900
Standard 2	Expanding Role of the United States in International Affairs
Standard 3.	Cycles of Economic Boom and Bust in the 1920s and 1930s
Standard 4.	Role of the U.S. in International Affairs and World War II, 1933–1946
Standard 5.	U.S. Foreign and Domestic Policies during the Cold War, 1945–1975
Standard 6.	U.S. Foreign and Domestic Policies, 1976 to the Present

Table 7. Criteria for Aligning the Test with Oklahoma Academic Standards and Objectives

1. Categorical Concurrence	The test is constructed so that there are at least six items measuring each Oklahoma Academic standard with the content category consistent with the related standard. The number of items, six, is based on estimating the number of items that could produce a reasonably reliable estimate of a student's mastery of the content measured.
2. Range-of-Knowledge	The test is constructed so that at least 50% of the objectives for an Oklahoma Academic Standard have at least one corresponding assessment item.
3. Balance-of-Representation	The test is constructed according to the alignment blueprint, which reflects the degree of representation given on the test to each Oklahoma Academic Standard and objective in terms of the percent of total test items measuring each standard and the number of test items measuring each objective.
4. Source-of-Challenge	Each test item is constructed in such a way that the major cognitive demand comes directly from the targeted Oklahoma Academic skill or concept being assessed, not from specialized knowledge or cultural background that the test-taker may bring to the testing situation.

Data review represents a critical step in the test development cycle. At the data review meeting, the SDE and McGraw-Hill Education CTB staff had the opportunity to review actual student performance on the newly-developed and field tested multiple-choice items across the seven subjects based on the Winter/Trimester 2013–14 and Spring 2014 field test administrations. The data review focused on the content validity, curricular alignment, and statistical functioning of field tested items prior to selection for operational test forms. The field test results used in the data review provided evidence that the items were designed to yield valid results and were accessible for use by the widest possible range of students. The review of student performances should provide evidence regarding the fulfillment of requirement 200.2(b)(2) of NCLB. The purpose of the review meeting was to ensure that psychometrically sound, fair, and aligned items are used in the construction of the ACE EOI assessments and entered into the respective item banks. McGraw-Hill Education CTB provided technical and psychometric expertise and a clear explanation about the items' content, the field test process, the scoring process, and the resulting field test data to ensure the success of these meetings and the defensibility of the program.

Data review meetings were a collaborative effort between the SDE and McGraw-Hill Education CTB. The SDE administrators and content specialists attended the training facilitated by McGraw-Hill Education CTB content specialists and research scientists on best practices involved in interpreting and reviewing the field test data. Meeting materials included a document explaining the flagging criteria, a document containing flagged items, and the item images. McGraw-Hill Education CTB discussed with the SDE the analyses performed and the criteria for

flagging the items. Each of the flagged items was then reviewed, and the decision was made to accept the item, accept the item for future re-field testing with revisions, or reject the item. Review of the data included presentation of *p*-value, point-biserial correlation, point-biserial correlation by response option, response distributions, mean overall score by response option, and indications of item differential item functioning (DIF) and item response theory (IRT) misfit. Items failing to meet the requirements of sound technical data were carefully considered for rejection by the review panel, thereby enhancing the reliability and improving the validity of the items remaining in the bank for future use. Although the panel used the data as a tool to inform their judgments, the panel (and not the data alone) made the final determination as to the appropriateness or fairness of the assessment items. The flagging criteria for the ACE EOI assessments are as follows:

- *p*-value <.25 or >.90
- point-biserial correlation <.15
- distractor point-biserial correlation >.05
- differential item functioning (DIF): test item biases for subgroups
- IRT misfit as flagged by the Q_1 index (see **Section—6.3 Calibration & Item Fit**)

Bias and Sensitivity

One aspect of the data review meetings was to assess potential bias based on DIF results and item content. Although bias in the items had been deflected by writer training and review processes, there is always the potential for bias to be detected through statistical analysis. This step in the development cycle is essential because the SDE and McGraw-Hill Education CTB seek to avoid inclusion of items biased in any manner against a group, because these items may lead to inequitable test results. As described earlier, all field test items were analyzed statistically for DIF using the field test data. A McGraw-Hill Education CTB research scientist explained the significance, in terms of level, and the direction of the DIF flags. The data review panel reviewed the item content, the percentage of students selecting each response option, and the point-biserial correlation for each response option by gender and ethnicity for all items flagged for DIF. The data review panel was then asked if there was context (e.g., cultural barriers) or language in an item that might result in bias and provide an explanation for the existence of the statistical DIF flag.

Once items were written, they were reviewed to assure the items were appropriate for and aligned to the grade level, the Oklahoma Academic Standard and objective, and the DOK intended. The items were also reviewed to assure they were accurate, written at an appropriate reading level for the grade, written at an appropriate level of difficulty, and did not contain sensitive or potentially biased issues.

Statistical bias analyses were performed as part of the development, review, and fairness efforts. Field test items were analyzed for statistical bias utilizing the Mantel-Haenszel method (MH; Mantel & Haenszel, 1959; Holland & Thayer, 1988; Michaelides, 2008). The results for Winter/Trimester 2013–14 and Spring 2014 are found in **Section 7—Results** of this report.

Section 2.2—Item Pool Development and Selection

The source of the operational items included a pool of previously field tested or operationally-administered items ranging from the Spring 2005 through the Spring 2012 administrations for Algebra I, Biology I, English II, and U.S. History and from the census Spring 2007 field test through the Spring 2011 embedded field test for Algebra II, Geometry, and English III. The items were calibrated live using data from the operational administrations to estimate the items' parameters.

The ACE EOI tests for the Winter/Trimester 2013–14 and Spring 2014 cycle were built by including previously field tested and operational items. Content experts targeted the percentage of items measuring various Depth of Knowledge (DOK) levels for assembling the tests. Table 8 provides the DOK level percentages from the Summer 2013, Winter/Trimester 2013–14, and Spring 2014 operational assessments. During test construction, every effort was made to construct test forms that met the target percentages as closely as possible.

Blueprints

Text and Item Development Process

To ensure content validity of the Oklahoma OCCT EOI tests, McGraw-Hill Education CTB content experts carefully studied the Oklahoma Academic Standards and/or the *Priority Academic Student Skills (PASS)* content standards. They worked with Oklahoma content area specialists, teachers, and assessment experts to gather a pool of existing items that measure Oklahoma's Assessment Frameworks (i.e., Oklahoma Academic Standards) for each subject. Once the need for field test items was determined, based on the items' availability for future test construction, a pool of items was developed to measure Oklahoma Academic Standards in each subject. These items were developed under universal design guidelines set by the SDE and carefully reviewed and discussed by Content and Bias/Sensitivity Review Committees. These committees composed of Oklahoma teachers and SDE staff, evaluated items' content for validity, plain language, and quality and appropriateness. The committees' recommendations were used to select and/or revise items from the item pool used to construct the field test portions of the Winter/Trimester 2013–14 and the Spring 2014 assessments.

Item selection and form development for the Spring 2014 cycle were completed as a collaborative effort between the SDE staff and McGraw-Hill Education CTB Content Development and psychometricians (Research). The primary criterion for the selection of items was to meet the content specifications represented by test blueprints and statistical guidelines. Within the limits set by these requirements, such as classical and IRT statistics, described in **Section 6—Methods**, editors selected items with the best content-relevant and statistical characteristics.

The OCCT EOI operational tests for the Winter/Trimester 2013–14 and the Spring 2014 cycles were built by including previously field tested and operational items. Content experts also targeted the percentage of items measuring various DOK levels when assembling the tests. Table 8 provides the DOK level percentages for the Summer 2013, Winter/Trimester 2013–14, and Spring 2014 operational assessments.

Table 8. Percentage of Items by Depth of Knowledge Levels

Test Session	DOK Level	Target DOK %	Actual %			
			Algebra I	Algebra II	Biology I	English II
Summer 2013	1	10–15	13	15	12	7
	2	60–70	67	69	45	70
	3/4	15–25	20	16	42	23
Winter/Trimester 2013–14	1	10–15	14	16	13	7
	2	60–70	71	60	53	77
	3/4	15–25	15	24	34	16*
Spring 2014 Core A	1	10–15	15	14	10	13
	2	60–70	67	64	57	71
	3/4	15–25	18	22	33	16
Spring 2014 Core B	1	10–15	14	15	12	15
	2	60–70	71	67	58	70
	3/4	15–25	15	18	30	15

* English II has one DOK 3 item that was suppressed.

Table 8. Percentage of Items by Depth of Knowledge Levels *(continued)*

Test Session	DOK Level	Target DOK %	Actual %		
			English III	Geometry	U.S. History
Summer 2013	1	10–15	13	15	7
	2	60–70	68	69	68
	3/4	15–25	19	16	25
Winter/Trimester 2013-14	1	10–15	12	16	11
	2	60–70	67	62	72
	3/4	15–25	21	22	17
Spring 2014 Core A	1	10–15	24	14	11
	2	60–70	51	71	67
	3/4	15–25	25	15	22
Spring 2014 Core B	1	10–15	16	14	10
	2	60–70	57	71	68
	3/4	15–25	27	15	22

Section 3—Administration

To ensure a valid and reliable assessment, the OCCT EOI tests are first constructed in alignment with the *Oklahoma C*^{3} Standards (now called the Oklahoma Academic Standards) by the Oklahoma SDE in collaboration with McGraw-Hill Education CTB. The tests are then administered and scored according to sound measurement principles for the purpose of evaluating validity. Additionally, best practices require that the test administering and scoring entities perform their tasks in a consistent manner throughout the state so that all students have a fair and equitable opportunity for a score that reflects their achievement in each subject.

Schools play a key role in administering the OCCT EOI assessments in a manner that is consistent with established procedures, monitoring the fair administration of the assessment, and working with the SDE office to address deviations from established assessment administration best practice procedures. School faculty members play a vital role in the success of OCCT EOI assessments by ensuring fairness in administration of the test.

Section 3.1—Packaging and Shipping

In order to provide secure and dependable services for the shipping of the OCCT EOI assessment materials, McGraw-Hill Education CTB's Transportation Department maintains the quality and security of material distribution and return by hiring reputable carriers that possess the ability to trace shipments. McGraw-Hill Education CTB uses all available tracking capabilities to provide status information and early opportunities for corrective action.

Materials are packaged by schools and delivered to the district test coordinators. Each shipment to a district contains a shipping document set that includes a packing list for each school's materials.

Materials are packaged using information provided by the test coordinators through the McGraw-Hill Education CTB Precode Utility (EOI) or the Oklahoma WAVE system (grades 3–8). Oklahoma educators also use these systems to provide McGraw-Hill Education CTB with the precode information needed to print student barcode labels, which are affixed on answer documents or consumable test books. The bar-coding of all secure materials at the time of production allows for accurate tracking of these materials through the entire packing, delivery, and return process. This allows McGraw-Hill Education CTB to inventory all materials throughout the packaging and delivery process.

Section 3.2—Materials Return

The Test Preparation Manual and Materials Return poster provide clear instructions on how to assemble, box, label, and return testing materials after test administration. McGraw-Hill Education CTB utilizes double-column boxes to distribute and collect test materials and makes additional cartons available for order to meet the various return needs of the districts.

Stack cards and paper bands are provided to group and secure used student response booklets for scoring. Color-coded return labels with pre-printed return information are also provided. These labels facilitate the sorting of each carton and its contents upon receipt at McGraw-Hill Education CTB's Data Processing Facility.

Section 3.3—Materials Discrepancies Process

The scanning process allows McGraw-Hill Education CTB to capture multiple-choice responses and student writing images. Test security form information is also captured electronically via a secure database. All scorable material discrepancies are captured, investigated by the McGraw-Hill Education CTB Oklahoma Help Desk, and reported with the results subsequently reported to the Oklahoma SDE.

A pre-determined date is set by the SDE and McGraw-Hill Education CTB in order to account for any materials that arrive after the scheduled deadline. Late-arriving material is processed up to the agreed-upon date, at which point the Oklahoma SDE must be notified of any late-arriving documents and render a processing decision. Following an initial call campaign to all districts with outstanding secure material, the McGraw-Hill Education CTB Oklahoma Program Management team notifies the SDE regarding unresolved material discrepancies presented in a preliminary file. A subsequent call or email campaign may be conducted based on the results of the initial effort. Final missing inventory reports are then provided to the SDE. McGraw-Hill Education CTB takes test security seriously and makes every effort to recover missing material.

Section 4—Scoring

The OCCT EOI Spring 2014 test books included MC items that were machine scored and extended writing prompt items that were scored by trained human or "hand" scorers (raters). The MC items were scanned and scored as correct or incorrect according to predefined answer keys. Items that had multiple marked answers or were blank were treated as incorrect.

The Writing test is one portion of the OCCT EOI English II and English III tests. Each writing response receives two types of scores. First, a series of analytic scores focus on specific writing traits. These traits receive scores of 1 to 4. Next, a composite score is derived by providing a differential weight or percentage to the score in each of the analytic traits and applying a formula to obtain the final Writing score, which ranges from 1 to 6 for English II and from 1 to 10 for English III. Condition codes are used if the student's writing response is unscorable. Students do not receive separate reports for English II and English III Writing; the results are reported with the MC results.

Scoring Rubrics

Scoring rubrics were provided by the Oklahoma SDE. The rubrics focus on five specific writing skills: Ideas and Development; Organization, Unity, and Coherence; Word Choice; Sentences and Paragraphs; and Grammar, Usage, and Mechanics. Each trait is rated from 4 (the highest score) to 1 (the lowest score).

Anchor Papers

The OCCT EOI English II and English III writing prompts underwent field testing by the previous contractor. The SDE provided McGraw-Hill Education CTB with approved anchor sets for these field tested items during the contract transition period. The English II OCCT and OCCT Equivalent writing prompts were newly developed versions of the English II Form A and English II Equivalent prompts. Anchor paper candidates were selected by Handscoring staff and submitted to the SDE for review and approval and were used in rater training and scoring of the OCCT writing responses.

Anchor sets for English II and English III writing prompts were presented to raters by trait, with three examples for each of the four score points. The OCCT prompts utilize a four-point analytic rubric for each of five traits.

Section 4.1—Handscoring

Handscoring involves training and qualifying team leaders and raters, monitoring scoring accuracy and production, and ensuring the security of both the test materials and the scoring facilities. An explanation of the training and qualification procedures follows.

Training, Qualification, and Checkset Materials

All raters were trained and qualified in specific rater item blocks (RIBs), each of which consisted of a single writing prompt. Raters and team leaders were trained using the following steps:

- Provide a general introduction to OCCT EOI
- Introduce and review the writing prompts and scoring rubrics
- Review anchor papers and training papers, and answer questions arising from established scores
- Explain scoring strategies, followed by a question-and-answer period
- Administer Qualifying Round 1
- Review Qualifying Round 1 established scores, and answer questions arising from the scores
- Administer Qualifying Round 2 (if necessary)
- Explain condition codes and sensitive paper procedures
- Explain unscannable images procedures

All raters were trained and qualified using the same procedures and criteria used for the team leaders, who had been trained prior to the training of the raters. The qualification process was conducted through the Online Training System and proctored by Handscoring Supervisors and team leaders. The Online Training System enabled Supervisors to determine whether a rater had qualified upon completion of the set. The McGraw-Hill Education CTB Handscoring Supervisors proctored the training of the team leaders.

Throughout the course of handscoring, calibration sets of pre-scored papers (checksets/validity sets) were administered daily to each rater to monitor scoring accuracy and to maintain a consistent focus on the established rubrics and guidelines. Checksets were executed via imaging software that provided images in a manner so that the rater did not know when a checkset was being administered.

The McGraw-Hill Education CTB Data Monitoring staff ran inter-rater reliability reports throughout live scoring to look for any raters who were struggling and in need of retraining. Retraining involved a one-on-one discussion between the team leader (or Handscoring Supervisor) and the rater, who discussed the scoring concerns as well as the scoring guides and, if necessary, training papers. If the rater's accuracy on checkset scores did not meet the quality standards after this retraining, he/she was dismissed from the project immediately.

In addition to the checkset process, McGraw-Hill Education CTB's handscoring protocol included the use of read-behinds (spot-checks during live scoring). The read-behind was another valuable rater-reliability monitoring technique that allowed a team leader to review a rater's scored documents and provide feedback and counseling as appropriate.

Selection of Handscorers

McGraw-Hill Education CTB and Kelly Services, Inc., strive to develop a highly qualified, experienced core of raters so that the integrity of all projects is appropriately maintained.

McGraw-Hill Education CTB requires that all content experts, team leaders, and raters possess a bachelor's degree or higher. Kelly Services, Inc., carefully screened all new applicants and required them to produce either a transcript or a copy of the degree. Kelly Services, Inc., also required a one- to two-hour interview/screening process. Individuals who did not present proper documentation or had less than desirable work records were eliminated during this process. Kelly Services, Inc., verified that 100% of all potential raters met the degree requirement. All experienced raters and team leaders had already successfully completed the screening process.

All potential raters completed a pre-interview activity. For some parts of the pre-interview activity, applicants were shown examples of test responses and were supplied with a scoring guide. In a brief introduction, they became acquainted with the application of a rubric. After the introduction, applicants applied the scoring guide to score the sample responses. Each applicant's scores were used for discussion during the interview process to determine the applicant's trainability as well as an ability to understand and implement the standards set forth in the sample scoring guide.

Kelly Services, Inc., interviewed each applicant and determined the applicant's suitability for a specific content area and grade level. Applicants with strong leadership skills were interviewed further to determine whether they were qualified to be team leaders.

When Kelly Services, Inc., determined that applicants were qualified, they were recommended for employment. All assignments were made according to availability and suitability. Before being hired, all employees were required to read, agree to, and sign a nondisclosure agreement outlining McGraw-Hill Education CTB business ethics and security procedures.

Security guards were on-site whenever employees were present in the building. All employees were issued identification badges and required to wear them in plain view at all times. Visitors and employees who presented at the building entrance without their issued ID badges were issued temporary visitors' badges good for that one day only and were required to wear them in plain view. In addition, employees were advised to arrive the following day with their previously-issued ID badges worn in plain view. All employees and visitors were subject to inspection of their personal effects.

Handscoring Process

Writing prompts were evaluated on each of the five analytic traits and in accordance with Oklahoma's rubric. Using McGraw-Hill Education CTB's Electronic Handscoring System (EHS), all writing responses were scored independently by two raters. The EHS employed an

automated, random distribution of papers for first reads, second reads, and resolution reads across all readers designated to score that item. No student biographical or identifiable information was available to raters; all imaged items were scored as blind reads.

Rater Reliability

Section 8—Summary of Reliability & Validity describes the outcomes of inter-rater percentage of perfect and adjacent agreements. The inter-rater results for the operational writing prompts are presented in Table 9 for English II and English III.

Table 9. Inter-rater Percentage of Perfect and Adjacent Agreement for English II and III

Rater Item Blocks	Trait	PEID Item ID	Score Points	% of Agreement			Checkset Average Agreement Percentages
				Perfect	Adjacent	Perfect + Adjacent	
English II OCCT Writing Form A	A	01556481	1–4	0.54	0.34	0.88	0.65
	B	01556483	1–4	0.55	0.34	0.89	0.66
	C	01556484	1–4	0.55	0.34	0.89	0.69
	D	01556485	1–4	0.55	0.34	0.89	0.67
	E	01556486	1–4	0.54	0.34	0.88	0.67
English II OCCT Writing Form B	A	01556487	1–4	0.59	0.32	0.91	0.76
	B	01556489	1–4	0.59	0.32	0.91	0.75
	C	01556490	1–4	0.58	0.33	0.91	0.76
	D	01556491	1–4	0.58	0.33	0.91	0.74
	E	01556492	1–4	0.57	0.33	0.90	0.73
English III OCCT Writing Form A	A	01556519	1–4	0.49	0.33	0.82	0.77
	B	01556521	1–4	0.49	0.33	0.82	0.78
	C	01556522	1–4	0.49	0.33	0.82	0.78
	D	01556523	1–4	0.49	0.33	0.82	0.78
	E	01556524	1–4	0.49	0.33	0.82	0.78
English III OCCT Writing Form B	A	01556525	1–4	0.52	0.31	0.83	0.75
	B	01556527	1–4	0.52	0.31	0.83	0.76
	C	01556528	1–4	0.51	0.32	0.83	0.76
	D	01556529	1–4	0.50	0.32	0.82	0.75
	E	01556530	1–4	0.50	0.32	0.82	0.75

Section 5—Sampling Plan & Field Test Design

Section 5.1—Sampling Plan

A sample representative of the population of Oklahoma students was used for the Spring 2014 English II and English III post-equating because final scale scores and performance levels should be reported within two weeks of the closed testing window. Due to the reporting schedule, some students' data were prioritized in the scanning and scoring process and used throughout item level analyses, calibration, and equating. Once the data was available, McGraw-Hill Education CTB Research conducted a data integrity check and compared the sample selection to the 2014 population to ensure that the sample was representative.

Table 14, in the **Tables** section, provides the proportion of students in the English II and English III samples and within the Spring 2014 population that came from each of the subgroups: gender, ethnicity, special population (ELL), and socio-economic status (SES). SES is for students who have participated in the National School Lunch Program (NSLP). It is clear from the table that the sample is also representative of the state's Spring 2014 population, even across most of the subgroups.

No sampling decreases or increases were required since the sample received was well representative of the target or expected sample and therefore representative of the population of students in Oklahoma.

Section 5.2—Field Test Design

New items are field tested to build up the item bank for future form selections. An embedded field test design was used in which newly developed field test items were embedded throughout the test. The advantage of an embedded field test design is that test-takers do not know where the field test items are located and therefore students' motivation for operational and field test items are the same. Table 10 shows the number of field test items for Biology I and U.S. History. MC field test items were placed in common positions throughout the forms. Biology I had 15 items each in the six field test forms per forms A and B. U.S. History had 15 field test items each in the ten field test forms per forms A and B. Field test information for Algebra I, Algebra II, Geometry, English II, and English III was provided in a separate memorandum to the SDE. Field test items for these five contents were based on new content standards in the Spring 2014 administration.

Table 10. Number of Field Test Items for Biology I and U.S. History

Content	N of Embedded FT Forms	FT Items per Form	Total*
Biology I	6	15	90
U.S. History	10	15	150
Total			240

*Total Unique Field Test items

Section 5.3—Data Checking Activities

5.3.1. Suppressed/Omitted/Invalidated cases

Eliminated suppressed, omitted, and invalidated cases flagged in the WinScore files. Cases that had five or less valid attempts were eliminated as well.

5.3.2. Duplicate cases

Any duplicate cases were eliminated by checking student ID (if available), first and last name, middle initial, GIS_CD (GIS code normally containing the district and school ID), teacher name, school, birthday, gender, and response vectors.

5.3.3. Non-public schools

The non-public schools were excluded. Those schools are:

- Oklahoma School for the Deaf
- Oklahoma School for the Blind
- Riverside Indian School
- Sequoia Indian School
- Jones Academy

5.3.4. Second-timers

Students who took the test for the second time were excluded as well.

Section 6—Methods

The Winter 2013 OCCT EOI and Spring 2014 OCCT EOI programs were based on the application of pre-equating for Algebra I, Algebra II, Geometry, and Biology I, while post-equating was applied to English II and English III. For U.S. History, a new scale was set up and a standard setting was performed during Summer 2014.

Verification of the equating samples is described in **Section 5—Sampling Plan & Field Test Design**. A series of item level analyses were conducted. These analyses were highly scrutinized to confirm that score keys were accurately and systematically applied and that the summary statistics, such as the item difficulties (*p*-values) and reliabilities (point-biserial correlations), were comparable across administrations. McGraw-Hill Education CTB Content Development completed a review of all items flagged for possible mis-keys and approved the score keys that were applied. The items were then scaled using the IRT models chosen for OCCT EOI: the three-parameter logistic (3PL) model for MC items and the two-parameter partial credit (2PPC) analyses of the operational test items.

Section 6.1—Classical Item Analyses

Item Level Analyses

Each Winter 2013 and Spring 2014 operational test item was first reviewed in terms of classical raw score statistics. Each item was reviewed for frequency distribution (number of students responding for each answer choice or score level), overall *p*-value (proportion of students choosing the correct answer), and point-biserial or item-test correlation (how correlated each individual item is with the test as a whole based on the correct response). Typically, *p*-values should range between 0.25 and 0.90. Items with a *p*-value less than 0.25 are considered more difficult because fewer than 25% of the students are achieving the correct answer. Values greater than 0.90 indicate a fairly easy item because more than 90% of students are achieving the correct answer. A small number of easy items are included to motivate low-performing students, and a small number of difficult items are included to motivate high-performing students. With newly-tested content, the *p*-values may dip lower than 0.25, at which point the item should be evaluated in light of the newness of content or students' opportunity to learn the content. Point-biserials or item-test correlations are usually in the range of 0.30 and above, although some items can be acceptable when as low as 0.15. The point-biserials of each item's distractors, or incorrect responses, were also analyzed, as well as any distractor with a positive point-biserial, both of which were reviewed for the possibility of an additional correct response or no correct response.

Item omit rate (percentage of students that didn't respond to an item) was also examined. Omitted items are scored as zero. The rate of omission often provides information about test speededness, particularly if there is a high omit rate on an item at the end of a test session. High omit rate on an item might also indicate other problems associated with the item such as an

unclear question or confusing presentation. When more than 5% of students omitted an item, the item was reviewed by both McGraw-Hill Education CTB Research and Content Development.

A summary comparison of the classical statistics between the Spring 2012, Spring 2013, and Spring 2014 OCCT EOI results is presented in Table 15. Typically, differences less than about |0.05| are desirable and, as can be seen, *p*-values and mean item-test correlation differences were within expectation for almost all contents. English II had a *p*-value difference of 0.06.

A detailed summary of the item level classical raw score statistics and omission rates for Spring 2014 and a comparison to Spring 2013 are provided in **Section 7—Results**.

Section 6.2—Differential Item Functioning (DIF)

One of the goals of the OCCT EOI assessments is to assemble a set of items that provides a measure of a student's achievement that is as fair and accurate as possible for all subgroups within the population. Differential item functioning (DIF) analysis refers to statistical procedures that assess whether items are differentially difficult for matched-achievement students across reference and focal subgroups (the latter being the group of interest). DIF procedures typically control for overall between-group differences on a criterion, usually total test scores. Between-group performance on each item is then compared within sets of examinees having the same total test scores. If the item is differentially more difficult for an identifiable subgroup when conditioned on achievement, the item may be measuring something different from the intended construct. However, it is important to recognize that the flagging of items for DIF might be related to actual differences in relevant knowledge, skills, or the statistical Type I error. As a result, DIF statistics are used only to identify potential sources of item bias. Subsequent review by content experts and bias committees is required to determine the source and meaning of performance differences. OCCT EOI conducts DIF analyses across gender (males/females) and ethnicity—focal subgroups African American (not Hispanic), Native American/Alaskan Native, and Hispanic versus the reference group White (not Hispanic).

The Mantel-Haenszel (MH) DIF statistic was used for the OCCT EOI operational tests. It matches students across the reference and focal groups based on their overall test performance and provides a chi-square to test whether the odds of answering an item correctly are similar for both the reference and focal groups. The items were classified into three categories on the basis of the MH DIF chi-square statistics and the MH delta (Δ) value of A, B, C for either dichotomous or polytomous items (see Dorans & Holland, 1993; Zieky, 1993; and Michaelides, 2008), where items classified as A are interpreted as having no DIF and items classified as C are interpreted as having potentially severe DIF. The item flag classifications are made as follows:

- The item is classified into the C category if MH DIF is significantly different from zero ($p < 0.05$), and the absolute value of MH delta is greater than or equal to 1.5.
- The item is classified into the B category if MH DIF is significantly different from zero ($p < 0.05$), and the absolute value of MH delta is between 1.0 and 1.5.

- The item is classified into the A category if MH DIF is not significantly different from zero ($p \geq 0.05$), or if the absolute value of MH delta is less than 1.0.

Section 6.3—Calibration & Item Fit

Item Response Theory (IRT) Models

IRT Models and Rationale for OCCT EOI Applications

Item response theory (IRT) allows comparisons between items and examinees, even those from different test forms, by using a common scale for all items and examinees (i.e., as if there were a hypothetical test that contained items from all forms). The three-parameter logistic (3PL) model (Lord & Novick, 1968; Lord, 1980) was used to analyze item responses for the MC items. For analysis of the constructed-response (CR) items, the two-parameter partial credit model (2PPC) (Muraki, 1992; Yen, 1993) was used.

IRT is a statistical methodology that takes into account the fact that not all test items are alike and that all items do not provide the same amount of information in determining how much a student knows or can do. Computer programs that implement IRT models use actual student data to estimate the characteristics of the items on a test, called "parameters." The parameter estimation process is called "item calibration."

IRT models typically vary according to the number of parameters estimated. For the OCCT EOI tests, three parameters are estimated: the discrimination parameter, the difficulty parameter(s), and, for MC items, the guessing parameter. The discrimination parameter is an index of how well an item differentiates between high-performing and low-performing students. And item that cannot be answered correctly by low-performing students, but can be answered correctly by high-performing students, will have a high discrimination value. The difficulty parameter is an index of how easy or difficult an item is. The higher the difficulty parameter, the more difficult the item is. The guessing parameter is the probability that a student with very low ability will answer the item correctly.

Because the characteristics of MC and CR items are different, two IRT models were used in item calibration. The three-parameter logistic (3PL) model (Lord & Novick, 1968; Lord, 1980) was used in the analysis of MC items. In this model, the probability that a student with ability θ responds correctly to item i is

$$P_i(\theta) = c_i + \frac{1 - c_i}{1 + \exp[-1.7a_i(\theta - b_i)]}, \quad (1)$$

where a_i is the item discrimination, b_i is the item difficulty, and c_i is the probability of a correct response by a very low-scoring student.

For analysis of the CR items, the 2PPC model was used. The 2PPC model is a special case of Bock's (1972) nominal model. Bock's model states that the probability of an examinee with ability θ having a score $(k-1)$ at the k^{th} level of the j^{th} item is

$$P_{jk}(\theta) = P(x_j = k-1 \mid \theta) = \frac{\exp Z_{jk}}{\sum_{i=1}^{m_j} \exp Z_{ji}}, \; k = 1 \ldots m_j \quad , \tag{2}$$

where

$$Z_{jk} = A_{jk}\theta + C_{jk} \tag{3}$$

and k is the item response category ($k = 1, 2, \ldots . m_j$). The m_j denotes the number of score levels for the j^{th} item, and typically the highest score level is assigned $(m_j - 1)$ score points. For the special case of the 2PPC model used here, the following constraints were used:

$$A_{jk} = \alpha_j (k-1) \quad , \tag{4}$$

and

$$C_{jk} = -\sum_{i=0}^{k-1} \gamma_{ji} \, , \tag{5}$$

where,

$$\gamma_{j0} = 0 \quad , \tag{6}$$

and α_j and γ_{ji} are the free parameters to be estimated from the data.

Each item has $(m_j - 1)$ independent γ_{ji} parameters and one α_j parameter; a total of m_j parameters are estimated for each item.

The IRT model parameters were estimated using CTB/McGraw-Hill's PARDUX software (Burket, 2002). PARDUX estimates parameters simultaneously for MC and CR items using marginal maximum likelihood procedures implemented via the expectation-maximization algorithm (Bock & Aitkin, 1981; Thissen, 1982; CTB, 2011). Simulation studies have compared PARDUX with MULTILOG (Thissen, 1991), PARSCALE (Muraki & Bock, 1991), and BIGSTEPS (Wright & Linacre, 1992). PARSCALE, MULTILOG, and BIGSTEPS are among the most widely known and used IRT programs. PARDUX was found to perform as well as these other programs (Fitzpatrick, 1990; Fitzpatrick, 1994; Fitzpatrick & Julian, 1996).

Assessment of Item Fit to the IRT Model

Item-Model Fit

Item fit statistics discern the appropriateness of using an item in the 3PL or 2PPC model. A procedure described by Yen (1981) was used to measure fit to the 3PL model. Students are rank-ordered on the basis of $\hat{\theta}$ values and sorted into ten cells with 10% of the sample in each cell. For each item, the number of students in cell *k* who answered item *i*, N_{ik}, and the number of students in that cell who answered item *i* correctly, R_{ik}, were determined. The observed proportion in cell *k* passing item *i*, O_{ik}, is R_{ik}/N_{ik}. The fit index for item *i* is

$$Q_{1i} = \sum_{k=1}^{10} \frac{N_{ik}(O_{ik} - E_{ik})^2}{E_{ik}(1 - E_{ik})}, \tag{7}$$

with

$$E_{ik} = \frac{1}{N_{ik}} \sum_{j \varepsilon \text{ cell } k}^{N_{ik}} P_i(\hat{\theta}_j). \tag{8}$$

A modification of this procedure was used to measure fit to the 2PPC model. For the 2PPC model, Q_{1j} was assumed to have approximately a chi-square distribution with the following degree of freedom:

$$df = I(m_j - 1) - m_j, \tag{9}$$

where *I* is the total number of cells (usually 10) and m_j is the possible number of score levels for item *j*.

To adjust for differences in degrees of freedom among items, Q_1 was transformed to Z_{Q1} where

$$Z_{Q_1} = (Q_1 - df)/(2df)^{1/2}. \tag{10}$$

The value of Z will increase with sample size, all else being equal. To use this standardized statistic to flag items for potential misfit, it has been McGraw-Hill Education CTB's practice to vary the critical value for Z as a function of sample size. For the OP tests, which have large calibration sample sizes, the criterion $Z_{Q_1}Crit$ used to flag items was calculated using the expression

$$Z_{Q_1}Crit = \left(\frac{N}{1500}\right) * 4 \quad , \tag{11}$$

where N is the calibration sample size.

Items were considered to have poor model fit if the value of the obtained Z_{Q1} was greater than the value of Z_{Q1} critical. If the obtained Z_{Q1} was less than Z_{Q1} critical, the items were rated as having acceptable fit.

Section 6.4—Equating

Test Scaling and Equating

Once all item level analyses were conducted, each Winter 2013 and Spring 2014 OCCT EOI English II and English III form was calibrated and equated using the Stocking and Lord procedure (Stocking & Lord, 1983), a standard method of equating a new test form onto an existing scale. The Stocking and Lord procedure is based on the test characteristic curve (TCC) from the anchor items, which were all Spring 2014 operational MC items. CTB PARDUX software was applied to equating (2011). The same process was applied to both Winter 2013 and Spring 2014 English II and English III. TCC and IRT standard error of measurement (SEM) plots showing the quality of the test equating for Spring 2014 OCCT EOI are found in Figures 19–36.

Stability of Anchor Items

The stability of the anchor items is important for the equating procedure. The following method was applied to drop anchor items prior to equating:

1) Items flagged using the TCC method are considered for exclusion when the correlation between the input and estimated item parameters is below 0.80 for the *a*-parameter and below 0.90 for the *b*-parameter. If the exclusion of an anchor outlier item increases the *a*-parameter correlation to above 0.80 or increases the *b*-parameter correlation to above 0.90, then the anchor is a candidate for removal.
2) An anchor is a candidate for removal when the item is flagged on four of the seven statistics considered when examining the severe differences between the IRT regression curves: Item characteristic curves (ICCs) for anchor items prior to and after equating.
3) An outlier for *a*-parameter or *b*-parameter can be a candidate based on an anchor item plot, which shows the relationships of anchor item parameters before and after equating (Kolen & Brennan, 2004).
4) Removal of the item may not significantly alter the content distribution of the anchor set. The distribution of items across the content standards must remain within 10% of the test blueprint for the content area.
5) The mean difference and standard deviation ratio are also referenced.

6) It is important to recognize that differential item performance in two test administrations does not necessarily indicate item flaws and may be affected by population differences, differences in teaching strategies, curriculum changes, etc. Therefore, McGraw-Hill Education CTB recommended that the Oklahoma SDE consider item content-related factors in addition to statistical evidence of differential item performance in two test administrations.

Items removed from the anchor set based on the flags from the evaluation procedure are still scored as part of the whole test. After an anchor item is removed from the anchor set based on the previous criteria, the anchor file needs to be adjusted and a second version of the calibration and equating must be produced. All outputs in the second version need to be evaluated following the same guidelines as the original calibration runs.

Section 6.5—Writing Scoring

Writing prompts were administered as a part of the English II and English III Winter 2013 and Spring 2014 administrations. The writing score is a weighted composite of five analytic scores that focus on specific domains of writing skills. The steps for calculating the English II Writing scores follow and are illustrated for an example in Table 11.

Steps to Calculate OCCT EOI English II Writing Scores

STEP 1: Average the trait scores from the two raters to obtain each of the five analytic trait scores. Average the scores in Column C and Column D, and write the results in Column E.

STEP 2: Apply the weights to the trait scores. Multiply the numbers in Column B and Column E. Write the results in Column F.

STEP 3: Sum all the weighted trait scores in Column F (lower right corner).

STEP 4: Transform the sum of the weighted trait scores. That is, multiply the weighted sum of the trait scores by 1.7 and subtract 1.025 as shown following the table.

STEP 5: Round the transformed weighted composite score to the nearest whole number to obtain the final Writing score. After calculation, the final writing score value will range from 1 to 6.

Table 11. Calculating Writing Composite Scores for English II

A	B	C	D	E	F
Analytic Traits	Weights	Trait Scores from Rater 1	Trait Scores from Rater 2	Average (C+D)/2	Weighted Trait Scores (B X E)
Ideas and Development	0.30	3	2	(3+2)/2=2.5	.30 X 2.5 = 0.75
Organization, Unity, and Coherence	0.25	3	3	(3+3)/2=3.0	.25 X 3.0 = 0.75
Word Choice	0.15	3	2	(3+2)/2=2.5	.15 X 2.5 = 0.375
Sentences and Paragraphs	0.15	2	3	(2+3)/2=2.5	.15 X 2.5 = 0.375
Grammar/Usage and Mechanics	0.15	3	2	(3+2)/2=2.5	.15 X 2.5 = 0.375
					Sum Above
					= 2.625

Transformed Writing Score = 2.625 X 1.7 – 1.025 = 3.4375
Final Writing Score = 3

The steps for calculating the English III Writing scores follow and are illustrated for an example in Table 12.

Steps to Calculate OCCT English III Writing Scores

The steps that follow show the calculation of the ACE English III Writing scores based on the trait scores for a writing prompt. Table 12 shows an example of the calculation of the ACE English III Writing scores.

STEP 1: Average the trait scores from the two raters to obtain each of the five analytic trait scores. Average the scores in Column C and Column D, and write the results in Column E.

STEP 2: Multiply the weights by 5 to give new weights. Multiply the numbers in Column B by 5, and write the results in Column F.

STEP 3: Multiply each trait score by the new weight to give the weighted score. Multiply Column E by Column F, and write the results in Column G.

STEP 4: Sum all the weighted scores in Column G (lower right corner).

STEP 5: Transform the sum of the weighted trait scores. Multiply the weighted sum of the trait scores by .58 and subtract 1.67843 as shown following the table.

STEP 6: Round the transformed score to the nearest whole number to obtain the final English III Writing score. After calculation, the final ACE English III Writing score value will range from 1 to 10.

Table 12. Calculating Writing Composite Scores for English III

A	B	C	D	E	F	G
Analytic Traits	Weights	Trait Scores from Rater 1	Trait Scores from Rater 2	Average Trait (C+D)/2	New Weight (B X 5)	Weighted Trait Scores (E X F)
Ideas and Development	0.30	2	2	2	(.30 X 5) = 1.5	(2 X 1.5) = 3
Organization, Unity, and Coherence	0.25	1	2	1.5	(.25 X 5) = 1.25	(1.5 X 1.25) = 1.875
Word Choice	0.15	2	3	2.5	(.15 X 5) = 0.75	(2.5 X .75) = 1.875
Sentences and Paragraphs	0.15	3	3	3	(.15 X 5) = 0.75	(3 X .75) = 2.25
Grammar/Usage and Mechanics	0.15	4	3	3.5	(.15 X 5) = 0.75	(3.5 X .75) = 2.625
						Sum Above
						11.625

Transformed ACE English III Writing Score = 11.625 X .58 – 1.67843 = 5.06407
Final Writing Score = 5

Section 7—Results

This section provides the data analysis results for the Winter 2013 and Spring 2014 OCCT EOI. Item level analyses for operational test items are presented. Standard, test, and proficiency level student performances are summarized and presented as well. No operational MC items were suppressed in the OCCT EOI Spring 2014 operational tests.

Section 7.1—Item Level Performance

A summary comparison of the classical item statistics between the Spring 2012, Spring 2013, and Spring 2014 OCCT EOI is presented in Table 15. Typically, differences of less than about |0.05| are expected. As can be seen in Table 15, item *p*-values had a slight decrease across most grades and content areas, with the largest difference seen in English II (-0.06) and English III (-0.05) between Spring 2013 and Spring 2014. U.S. History item *p*-values increased by 0.05 in Spring 2014. The mean item-test correlation differences range from -0.02 to 0.04.

A summary of the range of *p*-values and item-test correlations of all operational test items for Spring 2014 is presented in Table 16. (Item-test correlations were calculated by correlating the correct response of the focal item to the remainder of the items in the test, focal item excluded.) As shown in Table 16, the average *p*-values for the operational test items are in the mid 0.60s for Algebra I, low 0.60s for Algebra II, high 0.60s for Biology I, high 0.60s to low 0.70s for English II, mid 0.60s for English III, high 0.60s for Geometry, and in the high 0.60s to 0.70 for U.S. History. The range of the *p*-values dips below 0.20 in Algebra I for form A. Item-test correlations across content areas for operational items are within typical and acceptable ranges. For English III, one or more items show item-test correlations lower than 0.15.

The item omission rates for operational test items for Spring 2014 are presented in Table 17. The operational MC items show less than 0.28% (well below the 5% criteria) omission rate across contents, indicating acceptable administration times for the number of items in each test session. The CR items for English II and III showed omission rates well below the 5% criteria, the highest being 1.01%.

The Spring 2014 OCCT EOI DIF results are reported for all contents in Table 18 for gender and Tables 19–22 for ethnicity. There were no items flagged for moderate or severe DIF for the Pacific Islander subgroup in operational test items. The results indicate that the majority of operational test items did not exhibit potential bias. For operational items on gender DIF, there were a total of 26 items (3.86%) flagged for moderate "B" DIF and 5 items (0.74%) flagged for severe "C" DIF. For operational test items in the African American (not Hispanic) and Hispanic ethnicity groups included in the DIF analyses, there were respectively 2.97% and 1.78% of the items flagged for moderate "B" DIF, and 0.89% and 0.30% of the items flagged for severe "C" DIF. For operational test items in the Asian and Native American/Alaskan Native ethnicity groups, there were respectively 8.92% and 0.15% of the items flagged for moderate "B" DIF, and 2.67% and 0.00% of items flagged for severe "C" DIF.

All of the items flagged were reviewed by McGraw-Hill Education CTB content experts who cross-referenced all teacher judgments and comments from across the content reviews, bias and sensitivity reviews, as well as alignment workshops to make decisions with the SDE about suppressions from operational scoring and use of the flagged operational and/or field test items in future test forms. No Spring 2014 operational items were suppressed due to DIF.

Items with Poor Statistics

Piloting or field testing items is the best way to find potentially problematic items in the item pool. However, even during an operational administration, there are times that items become unstable or do not exhibit the highest expected qualities. Therefore, the evaluation of items across administrations from the content reviews, bias and sensitivity reviews, alignment workshops, and the various statistical analyses can be exhaustive and sensitive to the test blueprints, which can sometimes result in the suppression of some operational items from student scores and of some field test items from the item pool. Sometimes, OE items do not show enough/adequate case counts at a given score level, resulting in score collapses, and items that do not converge during scaling or that exhibit extreme misfit are also suppressed.

During the Spring 2014 OCCT EOI operational test administration, items were reviewed for their classical statistics, and when those statistics were outside the range of difficulty (*p*-values less than 0.25 or greater than 0.90) or showed low item-test correlations (less than 0.15) for a specific item, the item was used or kept as a "good item" in the pool only when the content of the item justified its use (e.g., it was a new standard or new approach that was expected to be difficult). For the Spring 2014 OCCT EOI operational test, no items were suppressed. Items with less than desirable *p*-values and item-test correlations were reviewed by McGraw-Hill Education CTB content experts and Research, and field test items considered to have less than desirable statistics were suppressed from the item pool.

Section 7.2—Standards Level Performance

A review of the item difficulty across standards within each content area is provided to illustrate for which standards items were more or less difficult for students. The summaries are presented in Tables 23–27. The tables provide the number of operational items, the reliability (coefficient alpha) and the standard error of measurement (SEM) (see **Section 8—Summary of Reliability & Validity**), and the average difficulty or IRT location (*b*-parameter) value. The tables also provide the average *p*-values for the state and for each proficiency level for each standard.

As shown in Tables 23–27, the reliability at each standard, which is influenced by the number of items contributing to each standard, ranges from 0.62 to 0.87 in Algebra I, from 0.53 to 0.82 in Algebra II, from 0.43 to 0.80 in Geometry, from 0.51 to 0.81 in Biology I, from 0.29 to 0.73 in English II, from 0.32 to 0.71 in English III, and from 0.47 to 0.76 in U.S. History. Across the

content areas, the standard errors are no greater than 2.42 and the maximum amount of IRT information is about 0.27.

IRT locations and *p*-values should be reviewed within each content area by standard shown in Tables 23–27. The IRT scale locations provide an indication of the average *b*-parameters or location values of the set of items contributing to each of the standards. Different from the average *p*-values, the IRT locations provide information on the location of the items along the scale score continuum, such that higher values indicate a higher probability for a student with estimated higher ability to answer those items correctly. The *p*-values provide only the proportion of students in each group answering the items correctly, averaged across items within each of the standards.

Section 7.3—Test Level Performance

Total Group Scale Scores

The Spring 2014 OCCT EOI applies a number-correct to scale score scoring method based on the 3PL IRT model. In this method, all students who have the same raw score get the same scale score regardless of which items are correct.

Tables 28 to 30 provide the state-level distribution of the scale scores across grades and content areas for Spring 2013, Winter 2013, and Spring 2014, respectively. Tables 29 and 30 provide the state-level distribution of the scale scores across grades and content areas as well as the distribution across the 25^{th}, 50^{th}, and 75^{th} percentiles for Winter 2013 and Spring 2014. (Spring 2014 scale score reliability as coefficient alpha and standard error of measurement are also provided and further explained in **Section 8—Summary of Reliability & Validity**.) Provided as a reference only, Table 28 shows those results for Spring 2013. Histograms and associated skewness and kurtosis of the data for Spring 2014 are provided in Figures 1–18. The data are close to normally distributed with a very minimal positive skew in most content areas and grades.

Subgroup Scale Scores and Mean Differences

Subgroup-level scale score performance data (scale score means and standard deviations, minimum and maximum scale scores, reliability and standard error of measurement) are provided along with state-level data in Table 31 for Winter 2013 and in Tables 32–38 for Spring 2014. For Spring 2014, mean differences were subjected to independent sample *t*-tests for gender, IEP, Low SES, ELL, Section 504, and accommodated students subgroups, in each content area. One way Analysis of Variance (ANOVA) tests were conducted across ethnicities, for which equal variances were not assumed and the level of significance was set at 0.05. Spring 2014 results of the *t*-tests and ANOVA are found in Tables 39–44 and Table 45, respectively.

As shown in Table 39, females outperform males in all forms in Algebra I, Algebra II, English II, English III, Geometry, and in form A of Biology I; males outperform females in Biology I form B and U.S. History both forms. Mean differences are not statistically significant for Algebra II form B, Biology I form A, and Geometry forms A and B.

Results of the *t*-tests within each category indicate that IEP, Low SES, ELL, and accommodated students all score significantly lower than the rest of the population in all content areas (ranging from 5 to 70 fewer scale score points), as expected. IEP and accommodated students tend to have the lowest performance of the "special population" subgroups. For the Section 504 group, the "special population" outperformed the Non Section 504 group in all forms of Biology I, English II, Geometry, and U.S. History; also in form A of Algebra I, form B of Algebra II, and form AA of English III. There were no statistically significant differences across all contents.

Statistically significant differences exist between the ethnicity groups in all content areas and grades as presented in the ANOVA results in Table 45.

In comparing ethnicities across all content areas, students identified as Asian and White tended to outperform the other ethnicities in Spring 2014. A post-hoc Dunnett's C pair-wise comparison analysis was conducted to identify potential pairs of significant differences ($p = 0.05$), the results of which are found in Table 46. As shown in Table 46, Asian outperformed all other ethnicities in Algebra I and II, Biology I, English II, Geometry, and U.S. History; as well as most other ethnicities in English III, with the exception of White, Native American, and the Other subgroup. White outperformed most other ethnicities, except Asian, in most content areas. Most pairs were significantly different with some exceptions, which were **not** significant, between Native American, African American, Hispanic, Pacific Islander, White, and the Other subgroup in Algebra I and II forms A and B; and Pacific Islander in Biology I, Geometry, U.S. History, English II, and English III forms AA, AB, and BB.

Section 7.4—Proficiency Level Performance

Table 13 shows the Spring 2014 scale score cut points for each proficiency performance level and the scale bounds. The lowest obtainable scale score (LOSS) and highest obtainable scale score (HOSS) values are shown for all content areas.

Table 13. Spring 2014 Scale Score Cuts and Scale Bounds

Content Area	LOSS	Cut1	Cut2	Cut3	HOSS
Algebra I	490	662	700	762	999
Algebra II	440	654	700	783	999
Biology I	440	651	700	773	999
English II	440	609	700	817	999
English III	440	670	700	802	999
Geometry	440	635	700	777	999
U.S. History	440	636	672	729	999

Table 47 shows the scale score means and standard deviations for the state and for students in each proficiency level. Table 48 provides the statewide distribution (or "impact data") of students within each proficiency level (*Unsatisfactory, Limited Knowledge, Proficient, and Advanced*) and the overall pass rates defined as the total percentage of students in both the *Proficient and Advanced* proficiency levels for Spring 2014. Tables 47 and 48 do not include the number of students considered *Undetermined* (invalid) in the denominator of the calculation.

Impact data across proficiency levels are also provided for each gender, ethnicity, and special population subgroups in Tables 49–55, where comparative performance across subgroups mimics what was provided for the scale score descriptions.

Section 8—Summary of Reliability & Validity

This section summarizes some of the evidence in the earlier sections and provides additional evidence to support the degree to which the OCCT EOI tests are reliable and valid. For the OCCT EOI, several measures of reliability are available. First, the tests are administered in standard fashion to all students. When students needed accommodations, such accommodations were provided with specific guidance from the *OSTP 2013–2014 Test Preparation Manual* (see http://ok.gov/sde/sites/ok.gov.sde/files/documents/files/2705543-W_tpm_w13OK.pdf). The General Guidance section describes details about the tests as well as specific administration policies, procedures, and accommodation guidelines.

Section 8.1—Item Level Reliability

Item-specific reliability statistics include inter-rater reliability, item-test correlations, and differential item functioning (DIF) or item bias. The inter-rater reliabilities of CR items rely heavily on the solid and consistent training of the handscorers, as described in **Section 4—Scoring**. Table 9, for English II and English III, provides the relevant inter-rater statistics, which are presented in terms of percentage of perfect and adjacent agreement and checkset average agreement.

The point-biserial, or item-test correlation, is one measure of reliability, computed using the correlation between each item and the overall test. We discussed the item-test correlation in **Section 6—Methods** and in **Section 7—Results**. The item-test correlations for each content area and item type are shown in Table 56. The operational item correlations ranged from 0.25 to 0.60 (Algebra I), from 0.18 to 0.53 (Algebra II), from 0.17 to 0.56 (Biology I), from 0.17 to 0.63 (English II), from 0.11 to 0.65 (English III), from 0.18 to 0.58 (Geometry), and from 0.21 to 0.56 (U.S. History). Several items in the Spring 2014 operational OCCT EOI presented item-test correlation less than 0.15. Those items were investigated by Content Development for scoring key errors and found to be correctly scored. Any operational items with extremely low item-test correlation that may remain in the OCCT EOI item pool should be avoided on future operational forms.

DIF statistics (described in **Section 6—Methods** and **Section 7—Results**) provide a measure of the systematic errors by subgroups that are specifically attributed to potential bias or systematic over- or under-representation of subgroup performance when compared to total group performance. As shown in Tables 18–22 (last rows), the percentage of operational items that exhibited DIF at the moderate and severe levels was about 4.61% for gender and between 0.15% (Native American/White) and 11.59% (Asian/White) for the four ethnicity groups.

Section 8.2—Test Level Reliability

Total test reliability statistics (alpha and conditional standard errors of measurement, CSEMs) measure the level of consistency (reliability) of performance over all test questions in a given

form, the results of which imply how well the questions measure the content domain and could continue to do so over repeated administrations. Total test reliability coefficients, measured by Cronbach's alpha (Cronbach, 1951) range from 0.00 to 1.00, where 1.00 refers to a perfectly reliable test. The OCCT EOI reliability data are based on the Oklahoma student population and the results for 2014 are typical of the results obtained for all previous OCCT EOI operational tests. The total test reliabilities of the operational forms were evaluated first by Cronbach's alpha (1951) index of internal consistency. The specific calculation for Cronbach's alpha, α, is

$$\hat{\alpha} = \frac{k}{k-1}\left(1 - \frac{\sum \hat{\sigma}_i^2}{\hat{\sigma}_X^2}\right), \tag{12}$$

where k is the number of items on the test form, $\hat{\sigma}_i^2$ is the variance of item i, $\hat{\sigma}_X^2$ is the total test variance, and the summation is over all the items ($i = 1, \ldots, k$) on the test. Achievement tests are typically considered of sound reliability when their reliability coefficients are in the range of 0.80 and above.

Table 57 shows the reliability coefficients for each scored operational test form for each content area for both Spring 2013 and Spring 2014. The alpha reliability coefficients for Spring 2013 and Spring 2014 are quite similar. The reliability coefficients for Spring 2014 ranged between 0.86 (English III forms BA and BB) and 0.92 (Algebra I both forms, Biology I form A, Geometry form A, and U.S. History form A). Such a range is indicative of the high reliability of the Spring 2014 OCCT EOI operational tests. As is evident in Tables 32–38, for Spring 2014 state and subgroup data, the coefficients are quite high and similar to the state values, even at the subgroup levels. The mean of the state-level reliability coefficients for each content area in Table 57 are as follows: 0.92 (Algebra I), 0.89 (Algebra II), 0.91 (Biology I), 0.89 (English II), 0.86 (English III), 0.91 (Geometry), and 0.91 (U.S. History). At the subgroup level in Tables 32–38, the lowest reliability (0.82) was found for the Section 504 students in English III form AA.

The SEM is another measure of reliability and is a direct estimate of the degree of measurement error in students' total scores (per the alpha reliability coefficient). The SEM represents the number of score points about which a given score can vary, similar to the standard deviation of a score; the smaller the SEM, the smaller the variability of the estimate, and the higher the reliability. The total SEMs are computed with the following formula:

$$SEM = SD\_TT(\sqrt{1-\hat{\alpha}}) , \tag{13}$$

where *SD_TT* is the standard deviation for the total test and $\hat{\alpha}$ is the result of the calculation of Cronbach's α in Equation 12.

The CSEMs conditional on each scale score are computed with the following formula:

$$CSEM = SD\_SS(\sqrt{1-\hat{\alpha}}) , \quad (14)$$

where *SD_SS* is the standard deviation of the scale score. The total test SEMs for each test form are provided for each content area and grade at the state and subgroup levels in Tables 32–38. Scale score specific SEMs are given in Tables 58–64, which also provide the raw scores associated with each scale score.

Section 8.3—Test Level Validity

Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted to investigate potential evidence to further support the validity of the OCCT EOI test scores for the total population and then for the accommodated, ELL, and IEP subgroups. The subgroups were chosen such that the students within each group may have characteristics that could contribute to issues of access and/or for whom the test measures construct irrelevant variances. A variety of criteria are used conjunctively to evaluate the assumption that each test for each content area measures a single (unidimensional) construct (e.g., Algebra I, English II, U.S. History). In factor analyses, the "construct" is referred to as a factor. The analyses help to organize the data such that relationships defined as factors are illuminated. If the data are essentially unidimensional, a single factor should account for most of the variation in the data.

Accordingly, a unidimensional factor model was tested using polychoric correlation coefficients against the obtained covariance matrix using maximum likelihood estimation (Bentler & Bonett, 1980 and Jöreskog & Sorbom, 1989) for each content area and grade for the total population and each subgroup using SAS version 9.1. The polychoric correlation is most appropriate when variables are dichotomous or ordinal and together are assumed to reflect a single, underlying construct (Byrne, 1998).

First, the factorability of the correlation matrix was examined before conducting the CFA (Is the data adequately correlated and thus analyzable or "factorable" to move forward?). The Kaiser-Meyer Olkin (KMO; Kaiser, 1970, 1974) measure of sampling adequacy was used through an EFA procedure to evaluate the strength of the linear relationship among the items within each correlation matrix. KMO values in the 0.90 and greater range are considered "marvelous" according to Kaiser's (1974) criteria. As shown in Table 65 and Table 66, KMO values for the total group ranged from 0.96 to 0.98, and for each subgroup: from 0.89 to 0.97 (Accommodated), from 0.58 to 0.93 (ELL), and from 0.87 to 0.97 (IEP). That most of the KMO values are in the "marvelous" range suggests that the matrix is appropriate for CFA for each analysis.

As a rough estimate of the number of factors (dimensions or constructs) that might be present in the data, the Kaiser criterion of computing the eigenvalues for the correlation matrix was examined next. Eigenvalues represent how much variability is accounted for by each factor not in sum but out of the total amount of variance. Table 65 and Table 66 also show the total amount of variance that exists in each form, as well as the percentage of variance accounted for by the initial eigenvalue. For the total group analyses, the first eigenvalue's measure of the amount of

variance in relation to the total variance is 0.88 (Algebra I, both forms), 0.90 (Algebra II, both forms), 0.98 and 1.00 (Biology I), 0.94–1.00 (English II), 0.95 (English III, all forms), 0.91 (Geometry, both forms), and 0.99 and 1.00 (U.S. History). The range of variance by the first eigenvalue in each content area and subgroup is as follows:

- Accommodated: 0.87 and 0.81 (Algebra I), 0.80 and 0.68 (Algebra II), 0.89 and 0.80 (Geometry), 0.92 and 0.87 (Biology I), 0.69–0.83 (English II), 0.66–0.76 (English III), and 0.91 and 0.85 (U.S. History).
- ELL: 0.74 and 0.60 (Algebra I), 0.54 and 0.34 (Algebra II), 0.68 and 0.57 (Geometry), 0.63 and 0.52 (Biology I), 0.25–0.35 (English II), 0.24–0.29 (English III), and 0.57 and 0.43 (U.S. History).
- IEP: 0.86 and 0.79 (Algebra I), 0.76 and 0.64 (Algebra II), 0.87 and 0.76 (Geometry), 0.91 and 0.83 (Biology I), 0.66–0.80 (English II), 0.61–0.74 (English III), and 0.90 and 0.82 (U.S. History).

Such values indicate one major factor is present in each of the content assessments. It is interesting to note that the range of variance for the total population for U.S. History is mostly higher than the other content areas. At the subgroup level, the variance is higher for accommodated and IEP in Biology I and for ELL in Algebra I.

As a rule, "essential unidimensionality" is assumed when the ratio of the first eigenvalue to the second eigenvalue is at least three. The final columns of Tables 65 and 66 provide the ratio of the first and second eigenvalues. All grades and content areas for the total population and each subgroup have no ratios less than three; therefore, the OCCT EOI tests demonstrate essential unidimensionality per the eigenvalue ratio criterion.

An additional available criterion used in EFA to judge the number of factors present is the scree test (Cattell, 1966) of eigenvalues plotted against factors. Examination of the scree plots (Figures 37–108) for the content areas for the total population and each subgroup indicates a single factor model is present and similar patterns between the total population and subgroups.

Summary inspection across all the criteria—variance, ratio of eigenvalues, and scree plots—seems to indicate that the tests for each content area and grade, and for each subgroup, are essentially unidimensional. It is important to review the relationships of factors in conjunction with all other data, particularly where items may be dependent (for example, where several items share a passage or stimulus).

Section 8.4—Performance Level Reliability

Proficiency Level Reliability

One of the cornerstones of the federal Elementary and Secondary Education Act (ESEA) emphasizes the need for all students to score in the "Proficient" category on English Language Arts, Mathematics, and Science. Because of a heavy emphasis on moving all students to or above

the "Proficient" category, the consistency and accuracy of the classification of students into these proficiency categories is of particular interest. The statistical quality of cut scores that define the proficiency levels in which students are classified based on their performance serves as additional validity evidence. Details about the OCCT standard setting workshop and the Bookmark Standard Setting Procedure used to set the cut scores are given in the Oklahoma State Testing Program Standard Setting Technical Report for OSTP Grade 5 Social Studies, Grade 8 U.S. History, and EOI U.S. History (CTB/McGraw-Hill, 2014). The Bookmark Procedure (Mitzel, Lewis, Patz, & Green, 2001) is a well-documented and highly regarded procedure that has been demonstrated by independent research to produce reasonable cut scores on tests across the country.

It is also important to review the specific scale score SEM for each cut score. Table 67 shows the Spring 2014 SEMs estimated for each of the cut scores for each content. Comparison of the SEMs for the cut scores to the SEMs associated with other OCCT EOI scale scores for each test (shown in Tables 58–64) reveal that the SEMs for the cut scores are almost always among the lowest, which means that the OCCT EOI tests tend to measure most accurately near the cut scores. This is a desirable quality when cut scores are used to classify examinees. (Not every scale score possible, sometimes including the cut score, is shown in Tables 58–64; there are more scale scores possible at each raw score than can be shown in these tables.)

It is important that the amount of measurement error around the cut scores be minimal, and to have the expected consistency with which students would be classified into performance levels if a test were given on repeated occasions.

Classification consistency is defined as the extent to which two classifications of a single student agree from two independent administrations of the same test (or two parallel forms of the test). Classification consistency and accuracy are additional measures of test reliability as well as validity. Reliability coefficients, such as Cronbach's alpha, are used to check for the internal consistency within a single test. Test-retest reliability requires two administrations of the same test, which requires another test as an external reference. Consistency in the classification sense represents how well two forms of an assessment with equal difficulty agree (Livingston & Lewis, 1995). It is estimated using actual response data and total test reliability from an administered form of an assessment, from which two parallel forms of the assessment are statistically modeled and classifications compared.

Classification accuracy is defined as the agreement between the actual classifications using observed cut scores and true classifications based on known true cut scores (Livingston & Lewis, 1995). It is common to estimate classification accuracy by utilizing a psychometric model to find true scores corresponding to observed scores.

In other words, classification consistency refers to the agreement between two observed classification results, while classification accuracy refers to the agreement between the observed classification outcome and the true classification result. A straightforward approach to

classification consistency estimation can be expressed in terms of a contingency table representing the probability of a particular classification outcome under specific scenarios. For example, the following is a contingency table of (H+1) × (H+1), where H is the number of cut scores such that two cut scores yield a 3x3 contingency table below.

	Level 1	**Level 2**	**Level 3**	**Sum**
Level 1	P_{11}	P_{21}	P_{31}	$P_{.1}$
Level 2	P_{12}	P_{22}	P_{32}	$P_{.2}$
Level 3	P_{13}	P_{23}	P_{33}	$P_{.3}$
Sum	$P_{1.}$	$P_{2.}$	$P_{3.}$	1.0

To report classification consistency, Swaminathan, Hambleton, and Algina (1974) suggest using Cohen's kappa (1960):

$$\text{kappa} = \frac{P - P_c}{1 - P_c}, \tag{15}$$

where P is defined as the sum of the diagonal values of the contingency table (the values shaded in the above table), and P_c is the chance probability of a consistent classification under two completely random assignments. This probability, P_c, is the sum of the probabilities obtained by multiplying the marginal probability of the first administration and the corresponding marginal probability of the second administration:

$$P_c = (P_{1.} \times P_{.1}) + (P_{2.} \times P_{.2}) + (P_{3.} \times P_{.3}). \tag{16}$$

The Livingston and Lewis (1995) method, based on the binomial error model and the four-parameter beta true score distribution, was applied to OCCT EOI. Tables 68 and 69 show the classification consistency and classification accuracy indices. The values of all indices depend on several factors, such as the reliability of the actual test form, the distribution of scores, the number of cut scores, and the location of each cut score. The probability of a correct classification (Consistency) is the probability that the classification the student received is consistent with the classification that the student would have received on a parallel form; in other words, that the classification is correct. This is akin to the exact agreement rate in inter-rater reliability, and the expectation is that this probability would be high.

Table 68 shows that the average consistency is 0.72 across content areas and ranges from 0.67 (Biology I form B) to 0.75 (English II forms BA and BB). The average accuracy is 0.79 across all content areas and ranges from 0.75 (Biology I form B) to 0.82 (English II forms BA and BB). Cohen's kappa (Kappa) provides the same type of reliability or agreement statistic as in the inter-rater reliabilities. In this context, it represents the agreement of the classifications between the two parallel forms with consideration of the probability of a correct classification by chance

(Consistency–Chance[1])/(1–Chance). In general, the value of Kappa is lower than the value of Consistency because the probability of a correct classification by chance is greater than zero. This is true of the OCCT EOI data in Table 68. The average Kappa is 0.57 over all content areas and ranges from 0.53 (English III forms AA, AB, and BA) to 0.61 (Geometry both forms).

Consistency and accuracy are important to consider together. The probability of accuracy (Accuracy) represents the agreement between the observed classification, based on the actual test form, and true classification given the modeled form. Table 69 shows consistency and accuracy at the cut score level. The average consistency across content areas and cut score levels is 0.90, ranging from 0.86 (Biology I form B, at the Proficient and Advanced proficiency levels, and English III all forms and U.S. History form B, at the Advanced proficiency level) to 0.98 (English II forms BA and BB, at the Limited Knowledge, Proficient, and Advanced proficiency levels). The average accuracy across content areas and cut score levels is 0.93, ranging from 0.90 (Biology I form B, at the Proficient and Advanced proficiency level, and English III all forms and U.S. History form B, at the Advanced proficiency level) to 0.99 (English II forms BA and BB, at the Limited Knowledge, Proficient, and Advanced proficiency levels). Finally, Table 70 provides the probability of false positives (FP) and false negatives (FN) as measures of error in the data table, which are low (no greater than 0.06), as expected.

[1] The probability of a correct classification by chance (Chance) is the probability that the classification is correct and is due to chance alone. The probability of Chance is estimated under a complete random assignment procedure using the marginal distribution of each form. The Chance probabilities are expected to be low.

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Tables

Table 14. Demographic Information for 2014 Population based on MC items and 2014 Samples based on WP items

Content /Form	Group	Case Count		Large	Gender		Ethnicity				SES	ELL
		Students	School	District	F	M	W	NA	AA	HI		
ENG2A	Population	21607	474	8	49	51	53	17	10	12	49	3
	Sample	10151	250	9	50	50	52	13	12	14	47	3
ENG2B	Population	20036	457	9	50	50	54	16	10	12	47	2
	Sample	18796	449	5	48	52	55	17	9	12	47	2
ENG3A	Population	17145	469	8	50	50	53	17	9	12	47	2
	Sample	9822	279	8	49	51	53	16	10	13	45	3
ENG3B	Population	15528	456	8	50	50	53	16	10	13	46	2
	Sample	9737	287	7	50	50	52	16	11	14	46	3

Note: This table is from the Spring 2014 OK EOI Post-Equating Study memo discussed with the SDE; F=Female, M=Male, W=White, NA=Native American, AA=African American, HI=Hispanic, SES=Socio-economic Status, ELL=English Language Learner

Table 15. Summary of *P*-values and Item-Test Correlations Statistics for Operational Test Forms, Spring 2012 to Spring 2014

Subject	Operational Mean *P*-values*				Operational Mean Item-Test Correlations*			
	2012	2013	2014	Diff. S14-S13	2012	2013	2014	Diff. S14-S13
Algebra I	0.65	0.66	0.64	-0.02	0.42	0.41	0.44	0.03
Algebra II	0.61	0.63	0.62	-0.01	0.40	0.40	0.38	-0.02
Biology I	0.64	0.69	0.66	-0.03	0.37	0.37	0.40	0.03
English II	0.74	0.76	0.70	-0.06	0.33	0.33	0.37	0.04
English III	0.65	0.70	0.65	-0.05	0.35	0.35	0.34	-0.01
Geometry	0.70	0.71	0.68	-0.03	0.43	0.44	0.42	-0.02
U.S. History	0.64	0.65	0.70	0.05	0.37	0.39	0.40	0.01

*Census Data

Table 16. Summary of Range of *P*-values and Item-Test Correlations Statistics for Operational Test, Spring 2014

Content	Form	Mean *P*-values* Operational Items			Mean Item-Test Correlations* Operational Items		
		Low	Mean	High	Low	Mean	High
Algebra I	A	0.19	0.62	0.87	0.27	0.44	0.59
	B	0.40	0.65	0.88	0.25	0.43	0.60
Algebra II	A	0.36	0.61	0.97	0.20	0.39	0.52
	B	0.32	0.62	0.98	0.18	0.38	0.53
Biology I	A	0.36	0.65	0.91	0.19	0.41	0.56
	B	0.31	0.68	0.95	0.17	0.39	0.56
English II	AA	0.43	0.69	0.93	0.17	0.37	0.63
	AB	0.43	0.68	0.92	0.18	0.37	0.61
	BA	0.44	0.72	0.96	0.18	0.36	0.60
	BB	0.44	0.72	0.96	0.17	0.37	0.60
English III	AA	0.27	0.65	0.95	0.12	0.34	0.65
	AB	0.29	0.65	0.95	0.13	0.34	0.64
	BA	0.27	0.65	0.95	0.11	0.33	0.63
	BB	0.27	0.66	0.95	0.12	0.33	0.63
Geometry	A	0.29	0.67	0.90	0.18	0.43	0.57
	B	0.24	0.69	0.95	0.21	0.41	0.58
U.S. History	A	0.42	0.69	0.96	0.25	0.41	0.56
	B	0.38	0.70	0.93	0.21	0.38	0.53

*Census Data

Table 17. Summary of Range of Omission Rates for Operational Test by Item Type, Spring 2014

Content	Form	Item Type	Omission Rates* Operational Items Low	Mean	High
Algebra I	A	MC	0.02%	0.11%	0.28%
	B	MC	0.02%	0.08%	0.16%
Algebra II	A	MC	0.02%	0.10%	0.17%
	B	MC	0.02%	0.07%	0.15%
Biology I	A	MC	0.01%	0.09%	0.20%
	B	MC	0.02%	0.08%	0.15%
English II	AA	CR	1.01%	1.01%	1.01%
		MC	0.03%	0.13%	0.28%
	AB	CR	0.78%	0.78%	0.78%
		MC	0.01%	0.10%	0.26%
	BA	CR	1.00%	1.00%	1.00%
		MC	0.00%	0.09%	0.24%
	BB	CR	0.41%	0.41%	0.41%
		MC	0.01%	0.08%	0.16%
English III	AA	CR	0.78%	0.78%	0.78%
		MC	0.00%	0.08%	0.20%
	AB	CR	0.89%	0.89%	0.89%
		MC	0.02%	0.12%	0.22%
	BA	CR	0.72%	0.72%	0.72%
		MC	0.03%	0.08%	0.14%
	BB	CR	0.73%	0.73%	0.73%
		MC	0.01%	0.11%	0.24%
Geometry	A	MC	0.02%	0.09%	0.20%
	B	MC	0.00%	0.08%	0.17%
U.S. History	A	MC	0.01%	0.09%	0.16%
	B	MC	0.01%	0.07%	0.13%

*Census Data

Table 18. Spring 2014 Summary of Operational Test Items Flagged for Mantel-Haenszel Differential Item Functioning, by Item Type: Gender Male/Female

Content	Item Type	Operational Items		Total DIF Flags B+C
		B	C	
Algebra I	MC	4	1	5
Algebra II	MC	3	.	3
Biology I	MC	3	1	4
English II	MC	3	.	3
	CR	2	.	2
English III	MC	4	1	5
	CR	.	2	2
Geometry	MC	3	.	3
U.S. History	MC	4	.	4
Total Items Flagged		26	5	31
Total Items Tested		673		673
Percentage of Items Flagged		3.86%	0.74%	4.61%

Table 19. Spring 2014 Summary of Operational Test Items Flagged for Mantel-Haenszel Differential Item Functioning, by Item Type: Ethnicity African American/White

Content	Item Type	Operational Items		Total DIF Flags B+C
		B	C	
Algebra I	MC	1	.	1
Algebra II	MC	3	2	5
Biology I	MC	1	1	2
English II	MC	6	1	7
	CR	.	.	.
English III	MC	6	1	7
	CR	.	.	.
Geometry	MC	1	.	1
U.S. History	MC	2	1	3
Total Items Flagged		20	6	26
Total Items Tested		673		673
Percentage of Items Flagged		2.97%	0.89%	3.86%

Table 20. Spring 2014 Summary of Operational Test Items Flagged for Mantel-Haenszel Differential Item Functioning, by Item Type: Ethnicity Hispanic/White

Content	Item Type	Operational Items B	Operational Items C	Total DIF Flags B+C
Algebra I	MC	2	.	2
Algebra II	MC	1	1	2
Biology I	MC	3	.	3
English II	MC	.	1	1
	CR	.	.	.
English III	MC	5	.	5
	CR	.	.	.
Geometry	MC	1	.	1
U.S. History	MC	.	.	.
Total Items Flagged		12	2	14
Total Items Tested		673		673
Percentage of Items Flagged		1.78%	0.30%	2.08%

Table 21. Spring 2014 Summary of Operational Test Items Flagged for Mantel-Haenszel Differential Item Functioning, by Item Type: Asian/White

Content	Item Type	Operational Items B	Operational Items C	Total DIF Flags B+C
Algebra I	MC	12	1	13
Algebra II	MC	5	1	6
Biology I	MC	11	1	12
English II	MC	9	10	19
	CR	2	.	2
English III	MC	10	2	12
	CR	.	.	.
Geometry	MC	8	.	8
U.S. History	MC	3	3	6
Total Items Flagged		60	18	78
Total Items Tested		673		673
Percentage of Items Flagged		8.92%	2.67%	11.59%

Table 22. Spring 2014 Summary of Operational Items Flagged for Mantel-Haenszel Differential Item Functioning, by Item Type: Native American/White

Content	Item Type	Operational Items		Total DIF Flags B+C
		B	C	
Algebra I	MC	.	.	.
Algebra II	MC	.	.	.
Biology I	MC	.	.	.
English II	MC	1	.	1
	CR	.	.	.
English III	MC	.	.	.
	CR	.	.	.
Geometry	MC	.	.	.
U.S. History	MC	.	.	.
Total Items Flagged		1	.	1
Total Items Tested		673		673
Percentage of Items Flagged		0.15%	.	0.15%

Table 23. Algebra I, Algebra II, & Geometry Standards Level Summary Data, Spring 2014

Content	Form	Standard Reference	No. of Items	Average Difficulty (IRT Loc)	Average IRT Information	Objective % Correct State Mean	Alpha	SEM	Average P-value State	P.L. 1	P.L. 2	P.L. 3	P.L. 4	Pass
Algebra I	A	1 Number Sense and Algebraic Operations	15	712.93	0.27	67.88	0.82	1.52	0.68	0.28	0.45	0.70	0.93	0.79
		2 Relations and Functions	31	742.52	0.20	58.83	0.87	2.39	0.59	0.25	0.38	0.60	0.83	0.69
		3 Data Analysis, Probability, and Statistics	9	728.11	0.13	65.25	0.65	1.25	0.65	0.32	0.47	0.66	0.87	0.74
	B	1 Number Sense and Algebraic Operations	15	720.53	0.25	65.77	0.77	1.56	0.66	0.29	0.43	0.64	0.88	0.74
		2 Relations and Functions	31	735.94	0.21	64.78	0.87	2.34	0.65	0.26	0.40	0.64	0.87	0.73
		3 Data Analysis, Probability, and Statistics	9	741.11	0.12	66.58	0.62	1.25	0.67	0.31	0.45	0.66	0.86	0.74
Algebra II	A	1 Number Sense and Algebraic Operations	15	767.80	0.09	58.03	0.73	1.68	0.58	0.27	0.39	0.58	0.83	0.66
		2 Relations and Functions	31	754.48	0.10	60.19	0.82	2.39	0.60	0.30	0.42	0.61	0.83	0.68
		3 Data Analysis, Probability, and Statistics	9	704.67	0.11	71.14	0.61	1.18	0.71	0.39	0.54	0.73	0.91	0.79
	B	1 Number Sense and Algebraic Operations	15	771.53	0.10	57.70	0.73	1.70	0.58	0.27	0.38	0.56	0.82	0.65
		2 Relations and Functions	31	751.10	0.09	61.85	0.82	2.42	0.62	0.30	0.42	0.62	0.84	0.69
		3 Data Analysis, Probability, and Statistics	9	718.44	0.06	71.89	0.53	1.25	0.72	0.40	0.57	0.73	0.89	0.78
Geometry	A	1 Logical Reasoning	6	706.67	0.06	70.17	0.52	0.99	0.70	0.31	0.51	0.70	0.85	0.77
		2 Properties of 2-Dimensional Figures	20	714.40	0.09	74.28	0.80	1.74	0.74	0.32	0.52	0.74	0.91	0.82
		3 Triangles and Trigonometric Ratios	12	780.00	0.16	57.77	0.76	1.50	0.58	0.23	0.30	0.51	0.83	0.65
		4 Properties of 3-Dimensional Figures	10	758.70	0.11	60.45	0.72	1.33	0.61	0.20	0.31	0.57	0.83	0.69
		5 Coordinate Geometry	7	739.43	0.08	71.10	0.60	1.07	0.71	0.30	0.47	0.70	0.89	0.79
	B	1 Logical Reasoning	6	695.50	0.05	72.18	0.43	1.02	0.72	0.35	0.53	0.70	0.86	0.78
		2 Properties of 2-Dimensional Figures	20	710.60	0.11	75.88	0.80	1.70	0.76	0.34	0.52	0.74	0.92	0.82
		3 Triangles and Trigonometric Ratios	12	785.25	0.18	59.68	0.76	1.50	0.60	0.24	0.31	0.52	0.84	0.66
		4 Properties of 3-Dimensional Figures	10	760.30	0.11	56.70	0.69	1.33	0.57	0.21	0.30	0.51	0.78	0.63
		5 Coordinate Geometry	7	716.00	0.08	76.45	0.61	1.00	0.77	0.33	0.52	0.76	0.91	0.83

Table 24. Biology I Standards Level Summary Data, Spring 2014

Form	Standard Reference	No. of Items	Average Difficulty (IRT Loc)	Average IRT Information	Objective % Correct State Mean	Alpha	SEM	Average P-value					
								State	P.L. 1	P.L. 2	P.L. 3	P.L. 4	Pass
A	1 The Cell	12	695.17	0.11	61.36	0.74	1.45	0.61	0.36	0.55	0.75	0.93	0.80
	2 The Molecular Basis of Heredity	8	668.13	0.06	66.55	0.63	1.14	0.66	0.43	0.64	0.78	0.92	0.82
	3 Biological Diversity	16	691.25	0.05	64.64	0.73	1.72	0.65	0.41	0.63	0.76	0.89	0.80
	4 The Interdependence of Organisms	9	670.67	0.08	68.12	0.65	1.24	0.68	0.43	0.65	0.81	0.93	0.85
	5 Matter/Energy/Organization in Living Systems	12	703.42	0.07	59.22	0.66	1.50	0.59	0.37	0.54	0.70	0.88	0.75
	P1 Observe and Measure	6	707.17	0.09	57.66	0.56	1.04	0.58	0.34	0.51	0.70	0.91	0.76
	P2 Classify	7	632.00	0.10	73.71	0.64	1.00	0.74	0.48	0.73	0.87	0.97	0.90
	P3 Experiment	16	653.81	0.06	67.00	0.74	1.65	0.67	0.44	0.64	0.79	0.92	0.83
	P4 Interpret and Communicate	23	687.26	0.05	64.17	0.80	2.06	0.64	0.41	0.61	0.76	0.90	0.80
	P5 Model	8	714.63	0.09	58.03	0.56	1.23	0.58	0.37	0.52	0.68	0.88	0.74
B	1 The Cell	12	680.08	0.08	65.64	0.67	1.45	0.66	0.42	0.60	0.75	0.90	0.80
	2 The Molecular Basis of Heredity	9	677.78	0.06	66.60	0.55	1.28	0.67	0.45	0.61	0.75	0.90	0.80
	3 Biological Diversity	15	668.80	0.07	71.81	0.75	1.54	0.72	0.45	0.68	0.83	0.94	0.87
	4 The Interdependence of Organisms	9	689.11	0.07	70.40	0.61	1.25	0.68	0.42	0.64	0.78	0.90	0.82
	5 Matter/Energy/Organization in Living Systems	12	706.50	0.08	61.66	0.68	1.47	0.62	0.38	0.54	0.71	0.89	0.77
	P1 Observe and Measure	6	670.33	0.07	70.06	0.51	0.99	0.70	0.46	0.64	0.80	0.95	0.85
	P2 Classify	7	626.29	0.07	76.39	0.57	0.98	0.76	0.53	0.73	0.87	0.95	0.89
	P3 Experiment	16	674.19	0.04	66.54	0.66	1.73	0.65	0.43	0.60	0.73	0.88	0.78
	P4 Interpret and Communicate	22	675.18	0.08	69.47	0.81	1.91	0.70	0.43	0.65	0.81	0.93	0.85
	P5 Model	9	720.44	0.08	58.73	0.54	1.32	0.59	0.37	0.51	0.67	0.85	0.73

Table 25. English II Standards Level Summary Data, Spring 2014

Form	Standard Reference	No. of Items	Average Difficulty (IRT Loc)	Average IRT Information	Objective % Correct State Mean	Alpha	SEM	Average P-value					
								State	P.L. 1	P.L. 2	P.L. 3	P.L. 4	Pass
AA	1 Vocabulary	7	683.71	0.03	78.52	0.44	1.00	0.79	0.40	0.64	0.82	0.92	0.84
	2 Comprehension	20	745.55	0.05	65.36	0.72	1.91	0.65	0.27	0.46	0.68	0.86	0.72
	3 Literature	17	747.18	0.06	66.82	0.70	1.78	0.67	0.30	0.46	0.70	0.89	0.74
	3 Writing/Grammar/Usage and Mechanics	12	742.33	0.06	69.46	0.67	1.44	0.70	0.30	0.48	0.73	0.91	0.76
	4 Research and Information	4	688.00	0.02	N/A	0.29	0.82	0.75	0.35	0.60	0.79	0.90	0.81
AB	1 Vocabulary	7	683.71	0.03	78.58	0.45	1.00	0.79	0.40	0.65	0.82	0.92	0.84
	2 Comprehension	20	745.55	0.05	65.33	0.73	1.91	0.65	0.27	0.46	0.68	0.86	0.72
	3 Literature	17	747.18	0.06	66.41	0.70	1.78	0.67	0.29	0.46	0.69	0.88	0.73
	3 Writing/Grammar/Usage and Mechanics	12	742.33	0.06	69.06	0.68	1.44	0.69	0.30	0.47	0.72	0.91	0.76
	4 Research and Information	4	688.00	0.02	N/A	0.31	0.82	0.75	0.34	0.59	0.79	0.90	0.81
BA	1 Vocabulary	5	697.80	0.04	N/A	0.35	0.86	0.77	0.37	0.57	0.78	0.92	0.82
	2 Comprehension	21	723.67	0.06	71.27	0.71	1.83	0.71	0.29	0.49	0.72	0.87	0.76
	3 Literature	18	735.44	0.05	70.46	0.69	1.78	0.71	0.31	0.47	0.71	0.89	0.75
	3 Writing/Grammar/Usage and Mechanics	12	736.92	0.07	73.90	0.64	1.36	0.74	0.34	0.51	0.74	0.92	0.79
	4 Research and Information	4	730.25	0.04	N/A	0.31	0.84	0.73	0.32	0.48	0.73	0.91	0.78
BB	1 Vocabulary	5	697.80	0.04	N/A	0.36	0.87	0.77	0.37	0.56	0.78	0.93	0.81
	2 Comprehension	21	723.67	0.06	70.92	0.72	1.83	0.71	0.27	0.49	0.73	0.87	0.76
	3 Literature	18	735.44	0.05	70.34	0.71	1.77	0.70	0.31	0.46	0.71	0.89	0.76
	3 Writing/Grammar/Usage and Mechanics	12	736.92	0.07	73.32	0.64	1.37	0.73	0.34	0.51	0.74	0.92	0.78
	4 Research and Information	4	730.25	0.04	N/A	0.34	0.83	0.73	0.29	0.49	0.74	0.92	0.78

Note: Score for standards is not reported when number of items is less than 6.

Table 26. English III Standards Level Summary Data, Spring 2014

Form	Standard Reference	No. of Items	Average Difficulty (IRT Loc)	Average IRT Information	Objective % Correct State Mean	Alpha	SEM	Average P-value					
								State	P.L. 1	P.L. 2	P.L. 3	P.L. 4	Pass
AA	1 Vocabulary	6	742.67	0.06	69.79	0.42	1.05	0.70	0.35	0.51	0.70	0.85	0.74
	2 Comprehension	21	785.52	0.07	61.63	0.67	2.01	0.62	0.31	0.43	0.61	0.79	0.66
	3 Literature	14	770.07	0.07	60.73	0.60	1.65	0.61	0.29	0.39	0.60	0.79	0.65
	3 Writing/Grammar/Usage and Mechanics	14	781.21	0.10	64.43	0.63	1.58	0.64	0.32	0.44	0.64	0.82	0.69
	4 Research and Information	7	675.86	0.10	83.03	0.57	0.90	0.83	0.42	0.64	0.85	0.95	0.88
AB	1 Vocabulary	6	742.67	0.06	70.02	0.40	1.05	0.70	0.35	0.50	0.70	0.85	0.75
	2 Comprehension	21	785.52	0.07	61.56	0.67	2.01	0.62	0.31	0.42	0.60	0.78	0.66
	3 Literature	14	770.07	0.07	60.92	0.59	1.66	0.61	0.30	0.40	0.60	0.78	0.65
	3 Writing/Grammar/Usage and Mechanics	14	781.21	0.10	64.69	0.62	1.58	0.65	0.32	0.44	0.64	0.81	0.69
	4 Research and Information	7	675.86	0.10	82.73	0.57	0.90	0.83	0.41	0.63	0.85	0.95	0.88
BA	1 Vocabulary	7	755.43	0.07	66.50	0.38	1.13	0.67	0.35	0.47	0.65	0.83	0.70
	2 Comprehension	17	771.47	0.09	66.49	0.65	1.74	0.67	0.32	0.43	0.65	0.84	0.70
	3 Literature	19	739.05	0.10	68.47	0.70	1.81	0.69	0.32	0.44	0.67	0.86	0.72
	3 Writing/Grammar/Usage and Mechanics	14	798.29	0.10	58.13	0.51	1.69	0.58	0.34	0.40	0.55	0.75	0.61
	4 Research and Information	5	738.80	0.08	N/A	0.32	0.93	0.69	0.34	0.48	0.68	0.84	0.72
BB	1 Vocabulary	7	755.43	0.07	67.18	0.38	1.12	0.67	0.36	0.46	0.65	0.82	0.70
	2 Comprehension	17	771.47	0.09	66.72	0.64	1.74	0.67	0.32	0.43	0.65	0.83	0.70
	3 Literature	19	739.05	0.10	68.74	0.71	1.81	0.69	0.32	0.43	0.67	0.86	0.72
	3 Writing/Grammar/Usage and Mechanics	14	798.29	0.10	58.26	0.51	1.69	0.58	0.32	0.41	0.55	0.74	0.61
	4 Research and Information	5	738.80	0.08	N/A	0.33	0.93	0.69	0.32	0.44	0.67	0.84	0.72

Note: Score for standards is not reported when number of items is less than 6.

Table 27. U.S. History Standards Level Summary Data, Spring 2014

Form	Standard Reference	No. of Items	Average Difficulty (IRT Loc)	Average IRT Information	Objective % Correct State Mean	Alpha	SEM	Average P-value					
								State	P.L. 1	P.L. 2	P.L. 3	P.L. 4	Pass
A	1 Post-Reconstruction to the Progressive Era, 1878-1900	8	678.50	0.08	73.25	0.54	1.13	0.73	0.39	0.59	0.73	0.87	0.80
	2 Expanding Role of the United States in International Affairs	6	704.50	0.13	67.43	0.56	1.03	0.68	0.30	0.45	0.65	0.87	0.76
	3 Cycles of Economic Boom and Bust in the 1920s and 1930s	8	679.13	0.08	72.47	0.53	1.16	0.72	0.40	0.57	0.71	0.87	0.79
	4 Role of U.S. in International Affairs and WW II, 1933-1946	8	695.63	0.11	68.24	0.61	1.17	0.68	0.31	0.47	0.66	0.86	0.77
	5 U.S. Foreign & Domestic Policies during the Cold War, 1945-1975	18	698.89	0.12	67.37	0.76	1.77	0.67	0.34	0.47	0.65	0.85	0.75
	6 U.S. Foreign & Domestic Policies, 1976 to the Present	12	711.33	0.16	65.26	0.74	1.43	0.65	0.29	0.42	0.61	0.85	0.74
B	1 Post-Reconstruction to the Progressive Era, 1878-1900	8	672.75	0.09	76.56	0.52	1.10	0.76	0.40	0.57	0.74	0.89	0.82
	2 Expanding Role of the United States in International Affairs	6	700.00	0.13	70.18	0.55	1.01	0.70	0.29	0.44	0.65	0.87	0.77
	3 Cycles of Economic Boom and Bust in the 1920s and 1930s	8	690.50	0.06	72.34	0.47	1.20	0.72	0.38	0.54	0.69	0.84	0.77
	4 Role of U.S. in International Affairs and WW II, 1933-1946	8	699.25	0.09	69.22	0.52	1.19	0.69	0.35	0.48	0.64	0.84	0.75
	5 U.S. Foreign & Domestic Policies during the Cold War, 1945-1975	18	692.33	0.11	71.19	0.73	1.72	0.71	0.37	0.49	0.67	0.86	0.77
	6 U.S. Foreign & Domestic Policies, 1976 to the Present	12	722.17	0.13	65.35	0.66	1.46	0.65	0.29	0.43	0.60	0.81	0.71

Table 28. Spring 2013 Scale Score Statistics

Content	Form	N Count	Mean	SD	LOSS	N Min.	Scale Score Percentile 25th	50th	75th	N Max.	HOSS	Alpha	SEM
Algebra I	A	20891	739.89	53.98	490	113	711	741	769	90	999	0.91	16.24
	B	18677	740.20	52.90	490	87	712	740	769	90	999	0.91	16.00
Algebra II	A	16023	741.33	83.56	440	189	702	747	787	59	999	0.90	25.77
	B	14230	746.07	77.13	440	79	702	747	794	38	999	0.90	24.61
Biology I	A	22060	694.48	81.67	440	323	654	701	747	17	999	0.90	25.91
	B	15051	700.46	77.95	440	87	656	703	746	21	999	0.88	26.80
English II	AA	9776	765.46	70.03	440	46	726	770	808	11	999	0.87	25.44
	AB	9470	765.50	68.93	440	35	727	770	806	31	999	0.87	25.02
	BA	8911	771.97	64.87	440	16	733	771	812	20	999	0.86	24.43
	BB	8718	771.83	65.37	440	8	733	771	809	44	999	0.87	23.92
English III	AA	10096	763.72	64.95	440	49	730	771	807	3	999	0.88	22.34
	AB	9579	766.34	61.26	440	25	735	772	807	2	999	0.88	20.87
	BA	8556	775.45	55.94	440	9	745	780	809	17	999	0.88	19.68
	BB	8554	776.67	55.35	440	7	746	781	810	5	999	0.88	19.01
Geometry	A	20232	752.85	78.61	440	101	709	754	801	231	999	0.93	21.14
	B	17329	763.20	72.64	440	32	724	764	809	208	999	0.92	20.97
U.S. History	A	17691	741.07	78.25	440	125	700	748	789	27	999	0.91	23.32
	B	15721	749.72	70.53	440	53	706	751	794	11	999	0.89	23.36

Table 29. Winter 2013 Scale Score Statistics

	N					Scale Score Percentile						
Content	Count	Mean	SD	LOSS	N Min.	25th	50th	75th	N Max.	HOSS	Alpha	SEM
Algebra I	1184	703.20	60.97	490	31	671	712	740	0	999	0.90	19.48
Algebra II	888	738.32	95.88	440	18	689	753	794	4	999	0.91	28.22
Biology I	1397	678.53	92.81	440	34	628	683	738	1	999	0.90	29.25
English II	1389	745.04	86.33	440	6	694	754	802	4	999	0.91	25.64
English III	1460	744.50	65.94	440	6	705	746	783	2	999	0.91	19.53
Geometry	1542	743.78	78.50	440	12	698	749	794	12	999	0.91	23.09
U.S. History	1448	727.23	97.17	440	13	663	728	792	6	999	0.90	30.97

Table 30. Spring 2014 Scale Score Statistics

Content	Form	N Count	Mean	SD	LOSS	N Min.	Scale Score Percentile 25th	50th	75th	N Max.	HOSS	Alpha	SEM
Algebra I	A	27636	728.84	61.90	490	378	695	733	768	100	999	0.92	17.07
	B	17405	737.83	58.23	490	139	707	740	773	91	999	0.92	16.58
Algebra II	A	17849	737.54	73.80	440	145	702	743	781	27	999	0.89	24.11
	B	11852	741.09	73.17	440	84	702	747	787	19	999	0.89	24.57
Biology I	A	23408	684.45	91.52	440	587	630	695	747	24	999	0.92	26.58
	B	19383	697.63	84.04	440	215	647	702	750	28	999	0.91	25.83
English II	AA	11135	750.66	83.07	440	145	710	759	800	7	999	0.89	27.54
	AB	10905	750.26	84.00	440	128	712	761	802	17	999	0.89	27.46
	BA	9668	763.44	73.93	440	44	724	767	812	1	999	0.88	25.32
	BB	9676	762.32	75.96	440	45	725	768	805	6	999	0.89	25.44
English III	AA	8827	759.81	66.44	440	41	727	769	797	5	999	0.87	24.13
	AB	8458	759.76	65.99	440	39	730	766	802	2	999	0.87	24.02
	BA	7359	764.87	57.96	440	14	732	767	799	2	999	0.86	21.65
	BB	7496	765.73	57.85	440	14	735	770	803	2	999	0.86	21.63
Geometry	A	23452	750.74	77.41	440	165	714	759	800	139	999	0.92	22.33
	B	15243	754.96	71.25	440	63	720	759	798	75	999	0.91	21.33
U.S. History	A	20598	709.08	67.78	440	159	677	716	751	50	999	0.92	19.61
	B	16830	717.78	59.76	440	65	686	722	754	17	999	0.90	19.26

Table 31. Winter 2013, State and Subgroup Scale Score Descriptive Data

Content Area	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
Algebra I	Whole State	1184	703.20	60.97	490	870	0.90	19.48
	Female	522	703.22	62.81	490	870	0.90	20.01
	Male	662	703.19	59.53	490	870	0.90	19.01
	Native American	171	699.81	65.27	490	842	0.90	20.47
	African American	120	677.52	65.78	490	815	0.85	25.05
	Asian	13	750.77	71.94	641	870	0.94	18.15
	Hispanic	158	683.02	59.92	490	798	0.86	22.45
	White	566	718.48	54.35	490	870	0.90	17.33
	Other	156	687.71	57.89	490	805	0.88	20.01
	Pacific Islander	.	.	.	.	.	.	.
	IEP	130	651.74	71.90	490	769	0.85	27.70
	Low SES	607	695.15	62.97	490	870	0.89	20.69
	ELL	47	664.21	63.48	490	798	0.84	25.21
	Section 504	6	725.00	39.89	671	791	0.87	14.46
	Accommodated	38	670.18	65.68	490	798	0.87	23.35
Algebra II	Whole State	888	738.32	95.88	440	999	0.91	28.22
	Female	463	736.31	92.88	440	970	0.91	27.52
	Male	425	740.51	99.12	440	999	0.91	28.90
	Native American	121	740.43	83.21	463	970	0.91	25.50
	African American	86	667.06	92.08	440	874	0.87	33.18
	Asian	17	835.88	69.68	769	999	0.73	36.12
	Hispanic	59	702.25	102.74	440	922	0.91	31.11
	White	525	753.58	91.84	440	999	0.91	27.61
	Other	75	721.68	90.43	440	999	0.90	29.03
	Pacific Islander	5	654.40	93.00	531	753	0.88	31.85
	IEP	53	655.15	101.05	440	834	0.87	36.02
	Low SES	341	700.66	98.38	440	999	0.90	31.34
	ELL	12	683.67	104.40	440	825	0.89	34.91
	Section 504	5	744.60	47.61	674	801	0.81	20.52
	Accommodated	9	688.11	118.79	440	801	0.91	35.93

Table 31. Winter 2013, State and Subgroup Scale Score Descriptive Data *(continued)*

Content Area	Subgroup	Sample Size	Scale Score		Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
			Mean	SD				
Biology	Whole State	1397	678.53	92.81	440	999	0.90	29.25
	Female	697	675.62	86.32	440	955	0.89	28.84
	Male	700	681.44	98.82	440	999	0.91	29.52
	Native American	174	683.91	82.18	440	894	0.88	28.49
	African American	123	607.49	104.12	440	837	0.90	32.20
	Asian	26	737.81	86.33	621	999	0.87	30.83
	Hispanic	135	639.33	92.55	440	837	0.89	30.44
	White	809	696.87	83.73	440	955	0.89	27.91
	Other	128	652.49	99.10	440	955	0.90	31.47
	Pacific Islander	2	707.00	43.84	676	738	0.72	23.17
	IEP	153	592.26	100.22	440	955	0.88	34.33
	Low SES	574	648.92	89.52	440	894	0.89	30.17
	ELL	30	586.60	85.66	440	772	0.83	35.36
	Section 504	16	692.94	83.18	529	861	0.89	27.75
	Accommodated	30	634.00	95.01	451	861	0.89	32.08

Table 31. Winter 2013, State and Subgroup Scale Score Descriptive Data *(continued)*

Content Area	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
English II	Whole State	1389	745.04	86.33	440	999	0.91	25.64
	Female	690	756.81	82.78	440	999	0.91	25.38
	Male	697	733.48	88.34	440	999	0.91	25.79
	Native American	192	753.97	83.23	473	999	0.91	25.25
	African American	137	701.16	86.63	440	890	0.91	25.76
	Asian	21	739.05	92.51	547	909	0.92	26.71
	Hispanic	133	703.33	84.22	440	965	0.91	25.70
	White	764	763.71	77.73	440	999	0.90	24.98
	Other	141	714.42	99.07	440	965	0.92	27.26
	Pacific Islander	1	762.00	.	762	762	.	.
	IEP	155	658.32	86.09	440	873	0.90	26.62
	Low SES	578	723.63	84.05	440	965	0.91	25.12
	ELL	27	624.56	70.38	473	769	0.83	29.25
	Section 504	6	748.83	66.02	680	873	0.83	27.55
	Accommodated	20	665.75	84.93	533	873	0.90	27.22
English III	Whole State	1460	744.50	65.94	440	999	0.91	19.53
	Female	717	749.20	64.67	440	999	0.91	19.49
	Male	741	740.16	66.85	440	953	0.91	19.51
	Native American	207	742.17	59.26	504	999	0.90	18.69
	African American	143	713.18	63.73	440	922	0.90	20.34
	Asian	17	767.24	63.07	650	902	0.91	18.64
	Hispanic	136	727.29	51.01	612	887	0.88	17.71
	White	807	757.28	64.58	440	999	0.91	19.35
	Other	149	721.54	76.54	440	922	0.92	21.35
	Pacific Islander	1	759.00	.	759	759	.	.
	IEP	202	679.10	69.53	440	848	0.89	23.45
	Low SES	609	724.46	62.83	440	999	0.90	20.01
	ELL	22	687.64	50.23	612	783	0.86	18.98
	Section 504	11	762.91	30.07	714	809	0.70	16.59
	Accommodated	16	737.38	47.40	612	809	0.85	18.57

Table 31. Winter 2013, State and Subgroup Scale Score Descriptive Data *(continued)*

Content Area	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
Geometry	Whole State	1542	743.78	78.50	440	999	0.91	23.09
	Female	770	744.07	73.55	440	999	0.91	22.35
	Male	771	743.58	83.21	440	999	0.92	23.70
	Native American	231	753.99	76.07	468	999	0.91	22.41
	African American	133	681.74	82.30	440	879	0.89	27.46
	Asian	29	758.83	56.77	654	857	0.89	18.90
	Hispanic	149	723.41	75.94	468	917	0.91	23.32
	White	882	754.84	74.67	440	999	0.91	22.61
	Other	116	731.50	75.52	440	999	0.91	22.80
	Pacific Islander	2	823.00	132.94	729	917	0.95	29.36
	IEP	147	667.91	95.27	440	917	0.91	28.78
	Low SES	680	724.50	80.87	440	999	0.91	24.26
	ELL	31	687.23	96.37	468	917	0.92	27.13
	Section 504	16	749.13	63.79	595	857	0.89	21.27
	Accommodated	28	720.57	98.75	468	917	0.93	26.05
U.S. History	Whole State	1448	727.23	97.17	440	999	0.90	30.97
	Female	708	718.77	92.64	440	950	0.89	30.95
	Male	740	735.33	100.71	440	999	0.91	30.80
	Native American	206	725.70	85.20	440	950	0.88	29.54
	African American	140	667.82	91.66	440	894	0.87	32.49
	Asian	16	730.00	114.51	440	894	0.92	31.66
	Hispanic	130	697.52	86.80	440	918	0.87	30.74
	White	799	743.74	97.82	440	999	0.90	30.73
	Other	149	721.52	94.86	440	950	0.89	31.87
	Pacific Islander	8	740.50	71.84	648	822	0.87	26.25
	IEP	197	662.36	111.06	440	999	0.90	34.76
	Low SES	599	701.44	98.52	440	999	0.89	32.01
	ELL	20	630.25	72.70	440	783	0.78	34.26
	Section 504	10	709.80	65.29	563	801	0.80	29.05
	Accommodated	17	685.53	73.66	563	801	0.84	29.20

Table 32. Spring 2014, State and Subgroup Scale Score Descriptive Data, Algebra I

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
A	Whole State	27636	728.84	61.90	490	999	0.92	17.07
	Female	13407	734.22	57.50	490	999	0.92	16.38
	Male	14192	723.96	65.22	490	999	0.93	17.58
	Native American	4489	722.15	59.60	490	999	0.92	17.17
	African American	2648	701.87	65.26	490	999	0.91	19.42
	Asian	619	772.19	65.95	490	999	0.93	17.07
	Hispanic	3671	720.68	57.18	490	999	0.91	16.86
	White	14472	735.99	60.22	490	999	0.92	16.60
	Other	1654	729.70	64.64	490	999	0.93	17.36
	Pacific Islander	83	723.81	62.85	564	999	0.92	17.42
	IEP	4676	671.11	65.55	490	999	0.88	22.62
	Low SES	14234	713.66	60.71	490	999	0.91	17.77
	ELL	1148	699.50	62.43	490	999	0.90	19.32
	Section 504	231	734.75	54.15	490	999	0.91	16.33
	Accommodated	5357	676.73	66.45	490	999	0.89	21.73
B	Whole State	17405	737.83	58.23	490	999	0.92	16.58
	Female	8782	742.24	55.69	490	999	0.91	16.24
	Male	8623	733.33	60.38	490	999	0.92	16.88
	Native American	2689	730.46	54.38	490	999	0.91	16.18
	African American	1618	711.15	60.79	490	999	0.91	18.23
	Asian	398	782.28	62.89	650	999	0.91	18.67
	Hispanic	2223	728.40	57.21	490	999	0.91	16.71
	White	9355	744.62	56.42	490	999	0.92	16.28
	Other	1066	740.37	57.78	490	999	0.92	16.38
	Pacific Islander	56	736.38	59.02	565	872	0.92	16.49
	IEP	1474	681.93	66.44	490	999	0.90	21.11
	Low SES	8687	723.43	58.35	490	999	0.91	17.15
	ELL	576	704.56	55.85	490	999	0.89	18.26
	Section 504	150	728.93	54.73	490	872	0.91	16.78
	Accommodated	1800	688.40	65.94	490	999	0.90	20.41

Table 33. Spring 2014, State and Subgroup Scale Score Descriptive Data, Algebra II

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
A	Whole State	17849	737.54	73.81	440	999	0.89	24.11
	Female	9251	739.86	71.08	440	999	0.89	23.69
	Male	8587	735.14	76.53	440	999	0.90	24.49
	Native American	2897	727.02	71.75	440	999	0.88	24.59
	African American	1709	713.22	77.13	440	964	0.88	27.15
	Asian	447	786.74	77.05	460	999	0.91	23.23
	Hispanic	2199	733.07	70.57	440	999	0.88	24.35
	White	9647	744.11	71.84	440	999	0.89	23.30
	Other	900	734.39	77.97	440	999	0.90	24.75
	Pacific Islander	50	722.80	92.92	440	999	0.91	27.62
	IEP	1740	665.78	87.53	440	964	0.86	33.03
	Low SES	7879	723.41	73.79	440	999	0.88	25.13
	ELL	371	706.79	92.36	440	913	0.91	28.27
	Section 504	153	732.08	69.40	440	913	0.89	22.90
	Accommodated	2044	674.61	89.23	440	964	0.88	31.41
B	Whole State	11852	741.09	73.17	440	999	0.89	24.57
	Female	6189	743.11	70.55	440	999	0.88	24.18
	Male	5663	738.88	75.88	440	999	0.89	24.92
	Native American	1854	731.37	70.25	440	999	0.88	24.62
	African American	1130	715.84	74.10	440	969	0.87	27.17
	Asian	355	788.60	72.29	527	999	0.90	22.82
	Hispanic	1395	733.56	71.44	440	999	0.87	25.54
	White	6487	747.63	72.03	440	999	0.89	24.01
	Other	593	737.26	72.65	440	999	0.88	24.65
	Pacific Islander	38	743.71	90.66	440	889	0.91	27.93
	IEP	688	678.30	93.07	440	889	0.88	32.71
	Low SES	5099	726.76	73.01	440	999	0.88	25.56
	ELL	168	707.03	87.07	440	969	0.89	28.46
	Section 504	94	745.78	72.03	461	889	0.87	25.50
	Accommodated	827	687.77	93.30	440	918	0.89	31.31

Table 34. Spring 2014, State and Subgroup Scale Score Descriptive Data, Biology I

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
A	Whole State	23408	684.45	91.52	440	999	0.92	26.58
	Female	11402	684.98	85.86	440	999	0.91	26.11
	Male	11978	684.17	96.49	440	999	0.92	26.88
	Native American	3816	678.82	87.78	440	999	0.91	26.66
	African American	2283	635.44	92.75	440	999	0.90	29.13
	Asian	520	719.08	92.09	440	999	0.92	25.57
	Hispanic	2893	662.80	87.93	440	999	0.90	27.30
	White	12562	698.82	89.02	440	999	0.91	25.96
	Other	1278	682.98	88.75	440	999	0.91	26.23
	Pacific Islander	56	670.77	94.39	440	853	0.92	26.47
	IEP	4188	598.06	90.11	440	999	0.88	31.69
	Low SES	11824	660.32	90.32	440	999	0.91	27.60
	ELL	797	597.11	85.58	440	884	0.86	32.35
	Section 504	215	696.12	84.53	440	939	0.91	25.71
	Accommodated	4725	602.43	91.55	440	999	0.88	31.32
B	Whole State	19383	697.63	84.04	440	999	0.91	25.83
	Female	9568	692.19	79.48	440	999	0.90	25.66
	Male	9814	702.95	87.95	440	999	0.91	25.88
	Native American	3062	688.53	78.73	440	999	0.89	25.59
	African American	1907	650.07	83.62	440	953	0.89	27.85
	Asian	466	737.32	86.81	440	999	0.91	26.39
	Hispanic	2417	670.21	82.34	440	953	0.90	26.32
	White	10439	713.69	80.08	440	999	0.90	25.36
	Other	1041	696.63	85.42	440	999	0.91	25.92
	Pacific Islander	51	694.31	88.19	440	834	0.91	26.43
	IEP	1646	618.17	93.59	440	953	0.90	29.80
	Low SES	9404	673.77	83.21	440	999	0.90	26.39
	ELL	447	606.76	86.72	440	857	0.88	30.44
	Section 504	188	705.75	86.61	440	953	0.91	25.50
	Accommodated	1995	624.81	95.85	440	953	0.91	29.35

Table 35. Spring 2014, State and Subgroup Scale Score Descriptive Data, English II

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
AA	Whole State	11135	750.66	83.07	440	999	0.89	27.54
	Female	5556	764.37	75.38	440	999	0.88	26.29
	Male	5576	737.03	88.00	440	999	0.90	28.50
	Native American	1904	744.23	80.87	440	999	0.89	27.39
	African American	1029	713.08	90.19	440	925	0.89	30.26
	Asian	247	770.64	80.80	440	925	0.89	27.16
	Hispanic	1360	731.69	81.35	440	993	0.88	28.45
	White	5984	763.32	79.40	440	999	0.89	26.75
	Other	585	745.07	85.01	440	953	0.89	28.16
	Pacific Islander	26	723.19	120.85	440	953	0.93	31.96
	IEP	1799	657.23	96.42	440	925	0.88	33.84
	Low SES	5588	728.40	84.39	440	993	0.89	28.60
	ELL	308	651.59	91.50	440	845	0.85	35.27
	Section 504	108	756.45	78.25	463	953	0.88	27.00
	Accommodated	2021	662.08	97.84	440	953	0.88	33.32
AB	Whole State	10905	750.26	84.00	440	999	0.89	27.46
	Female	5168	766.59	75.39	440	999	0.88	26.28
	Male	5729	735.68	88.42	440	999	0.90	28.29
	Native American	1828	747.40	79.91	440	999	0.89	27.04
	African American	1138	720.79	87.40	440	934	0.89	29.20
	Asian	239	785.95	80.34	456	999	0.88	27.31
	Hispanic	1355	730.06	81.73	440	999	0.88	28.18
	White	5782	760.78	82.24	440	999	0.89	27.00
	Other	534	746.52	87.60	440	964	0.90	27.96
	Pacific Islander	29	709.17	97.66	491	964	0.90	30.33
	IEP	1755	654.40	98.17	440	964	0.88	33.79
	Low SES	5427	729.13	85.38	440	999	0.89	28.33
	ELL	310	664.65	84.52	440	838	0.85	32.75
	Section 504	110	760.91	66.22	573	934	0.85	25.35
	Accommodated	1969	661.27	98.87	440	964	0.89	33.07

Table 35. Spring 2014, State and Subgroup Scale Score Descriptive Data, English II *(continued)*

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
BA	Whole State	9668	763.44	73.93	440	999	0.88	25.32
	Female	4800	775.49	68.22	440	999	0.87	24.83
	Male	4868	751.55	77.34	440	986	0.89	25.64
	Native American	1538	756.27	71.58	440	986	0.88	25.06
	African American	965	730.70	79.86	440	986	0.89	26.74
	Asian	247	787.19	82.49	440	986	0.91	25.42
	Hispanic	1181	744.69	72.04	440	948	0.88	25.17
	White	5229	774.93	70.29	440	999	0.87	25.07
	Other	482	762.48	74.11	440	986	0.88	25.16
	Pacific Islander	26	734.65	79.50	572	866	0.91	24.36
	IEP	986	673.12	88.43	440	899	0.89	29.64
	Low SES	4613	743.81	75.33	440	986	0.88	25.76
	ELL	187	669.25	82.87	440	881	0.87	30.29
	Section 504	88	768.00	55.74	654	881	0.83	23.00
	Accommodated	1141	678.43	89.76	440	899	0.89	29.26
BB	Whole State	9676	762.32	75.96	440	999	0.89	25.44
	Female	4779	772.28	71.47	440	999	0.88	25.09
	Male	4897	752.60	78.90	440	999	0.89	25.72
	Native American	1559	756.11	72.02	440	997	0.88	25.17
	African American	927	726.55	81.85	440	959	0.89	26.54
	Asian	231	783.57	77.11	440	997	0.89	26.13
	Hispanic	1171	739.39	76.12	440	997	0.88	25.92
	White	5288	774.75	72.51	440	999	0.88	25.19
	Other	476	761.27	75.68	440	997	0.89	25.46
	Pacific Islander	24	742.79	57.76	614	857	0.83	23.82
	IEP	1019	668.36	92.20	440	930	0.90	29.84
	Low SES	4616	740.35	77.14	440	997	0.89	25.81
	ELL	184	656.87	85.58	440	833	0.87	30.75
	Section 504	82	762.68	77.26	440	999	0.88	26.35
	Accommodated	1177	673.96	93.77	440	999	0.90	29.58

Table 36. Spring 2014, State and Subgroup Scale Score Descriptive Data, English III

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
AA	Whole State	8827	759.81	66.44	440	999	0.87	24.13
	Female	4330	769.53	60.41	440	999	0.85	23.07
	Male	4484	750.74	70.19	440	999	0.88	24.79
	Native American	1587	754.16	66.46	440	936	0.87	23.84
	African American	814	734.35	68.76	440	906	0.86	26.04
	Asian	171	763.49	67.85	440	920	0.87	24.91
	Hispanic	1059	750.19	62.07	440	936	0.85	23.83
	White	4706	767.88	64.89	440	999	0.87	23.83
	Other	462	763.82	70.00	440	936	0.88	24.54
	Pacific Islander	28	737.93	80.00	584	882	0.90	24.71
	IEP	1470	685.29	78.53	440	906	0.86	29.22
	Low SES	4259	744.64	68.67	440	936	0.87	24.85
	ELL	223	689.33	71.04	440	842	0.84	28.69
	Section 504	73	764.96	53.18	550	894	0.82	22.44
	Accommodated	1620	689.02	79.09	440	906	0.87	28.90
AB	Whole State	8458	759.76	65.99	440	999	0.87	24.02
	Female	4124	769.30	60.64	440	999	0.85	23.17
	Male	4324	750.87	69.36	440	972	0.87	24.58
	Native American	1487	752.73	65.20	440	916	0.86	24.01
	African American	832	738.74	69.62	440	999	0.86	26.05
	Asian	164	767.71	58.77	575	931	0.86	22.08
	Hispanic	1051	749.67	63.47	440	949	0.86	23.80
	White	4495	768.43	64.37	440	949	0.86	23.70
	Other	404	756.01	70.35	440	916	0.88	24.11
	Pacific Islander	25	750.72	83.13	588	999	0.90	26.10
	IEP	1423	688.70	76.96	440	878	0.86	28.70
	Low SES	4098	745.90	68.40	440	931	0.87	24.75
	ELL	204	689.42	69.41	440	878	0.83	28.27
	Section 504	66	755.24	52.23	600	857	0.83	21.49
	Accommodated	1553	691.82	76.56	440	878	0.86	28.34

Table 36. Spring 2014, State and Subgroup Scale Score Descriptive Data, English III *(continued)*

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
BA	Whole State	7359	764.87	57.96	440	999	0.86	21.65
	Female	3635	771.83	55.68	440	999	0.85	21.28
	Male	3724	758.09	59.34	440	988	0.86	21.89
	Native American	1202	762.02	55.75	440	919	0.86	21.07
	African American	714	737.96	62.49	440	881	0.86	23.41
	Asian	147	759.85	70.83	440	958	0.89	23.80
	Hispanic	929	750.92	57.94	440	937	0.85	22.77
	White	3951	774.15	55.25	440	999	0.85	21.05
	Other	390	766.81	52.24	561	919	0.84	20.77
	Pacific Islander	26	723.85	74.25	440	831	0.85	29.03
	IEP	826	700.76	67.54	440	871	0.86	25.51
	Low SES	3445	749.97	59.92	440	988	0.86	22.44
	ELL	172	689.89	73.93	440	892	0.86	27.24
	Section 504	70	760.33	51.41	633	871	0.84	20.41
	Accommodated	963	703.80	68.55	440	871	0.86	25.38
BB	Whole State	7496	765.73	57.85	440	981	0.86	21.63
	Female	3800	772.11	55.23	440	981	0.86	21.02
	Male	3696	759.17	59.74	440	981	0.86	22.12
	Native American	1246	762.42	56.80	440	931	0.86	21.48
	African American	706	737.32	63.26	440	901	0.85	24.20
	Asian	164	768.41	66.31	440	901	0.87	23.75
	Hispanic	957	749.85	54.99	497	915	0.85	21.50
	White	4028	775.20	54.70	440	981	0.85	21.03
	Other	379	768.91	59.19	440	981	0.87	21.66
	Pacific Islander	16	738.50	64.78	568	828	0.87	23.79
	IEP	810	699.69	69.33	440	952	0.86	25.56
	Low SES	3500	751.20	59.67	440	952	0.86	22.27
	ELL	169	691.65	69.15	440	828	0.83	28.20
	Section 504	49	760.74	49.67	644	868	0.84	19.99
	Accommodated	931	701.80	70.19	440	952	0.87	25.55

Table 37. Spring 2014, State and Subgroup Scale Score Descriptive Data, Geometry

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
A	Whole State	23452	750.74	77.41	440	999	0.92	22.33
	Female	11649	751.57	73.70	440	999	0.91	21.91
	Male	11785	750.10	80.70	440	999	0.92	22.62
	Native American	3814	742.24	71.48	440	999	0.91	21.94
	African American	2320	712.09	78.34	440	936	0.91	24.13
	Asian	542	800.94	80.88	440	999	0.92	23.15
	Hispanic	2878	735.61	75.14	440	999	0.91	22.61
	White	12561	761.58	75.37	440	999	0.91	21.99
	Other	1272	753.26	79.54	440	999	0.92	22.21
	Pacific Islander	65	734.08	77.34	477	999	0.92	22.23
	IEP	3345	668.77	85.46	440	999	0.89	28.32
	Low SES	11287	730.25	77.29	440	999	0.91	23.17
	ELL	642	689.23	85.17	440	999	0.91	26.03
	Section 504	204	751.95	65.34	566	999	0.90	20.97
	Accommodated	3812	675.29	86.41	440	999	0.90	27.58
B	Whole State	15243	754.96	71.25	440	999	0.91	21.33
	Female	7676	755.51	70.17	440	999	0.91	21.27
	Male	7567	754.41	72.33	440	999	0.91	21.34
	Native American	2427	748.06	66.27	440	999	0.90	20.72
	African American	1534	717.16	76.51	440	923	0.90	23.79
	Asian	347	806.89	77.61	440	999	0.92	22.06
	Hispanic	1923	738.50	66.28	440	999	0.90	21.31
	White	8116	765.41	68.25	440	999	0.91	20.88
	Other	855	760.58	72.52	440	999	0.91	21.45
	Pacific Islander	41	726.90	73.03	558	832	0.92	20.87
	IEP	1270	682.73	84.56	440	999	0.90	26.85
	Low SES	7279	736.79	71.06	440	999	0.90	22.03
	ELL	354	707.44	79.42	440	999	0.91	23.89
	Section 504	136	757.93	64.59	558	999	0.90	20.20
	Accommodated	1524	691.70	85.21	440	999	0.91	25.89

Table 38. Spring 2014, State and Subgroup Scale Score Descriptive Data, U.S. History

Form	Subgroup	Sample Size	Scale Score Mean	Scale Score SD	Min Scale Score Obtained	Max Scale Score Obtained	Coefficient Alpha	SEM
A	Whole State	20598	709.08	67.78	440	999	0.92	19.61
	Female	10140	705.58	63.15	440	999	0.91	19.27
	Male	10441	712.62	71.73	440	999	0.92	19.80
	Native American	3336	702.44	65.13	440	999	0.91	19.48
	African American	1973	679.49	72.53	440	999	0.91	21.56
	Asian	483	733.62	66.62	440	999	0.92	19.40
	Hispanic	2474	692.26	66.85	440	999	0.91	20.10
	White	11222	719.25	64.72	440	999	0.91	19.13
	Other	1044	706.93	72.12	440	999	0.92	20.38
	Pacific Islander	66	686.14	79.23	510	881	0.93	20.28
	IEP	3459	648.45	76.00	440	999	0.90	23.47
	Low SES	9592	691.07	67.61	440	999	0.91	20.16
	ELL	529	639.26	75.59	440	817	0.89	25.04
	Section 504	182	711.55	62.09	440	839	0.90	19.40
	Accommodated	3851	650.86	76.46	440	999	0.91	23.28
B	Whole State	16830	717.78	59.76	440	999	0.90	19.26
	Female	8399	710.40	56.73	440	999	0.89	18.92
	Male	8430	725.12	61.78	440	999	0.90	19.50
	Native American	2645	713.06	57.53	440	999	0.89	19.07
	African American	1555	688.76	63.39	440	899	0.90	20.36
	Asian	412	729.71	60.01	440	899	0.90	18.64
	Hispanic	2105	702.68	58.14	440	899	0.89	19.19
	White	9148	727.24	57.87	440	999	0.89	19.21
	Other	926	715.85	56.27	440	899	0.89	18.72
	Pacific Islander	39	710.21	77.92	514	999	0.91	23.69
	IEP	1378	664.60	76.21	440	999	0.91	22.81
	Low SES	7436	701.56	60.83	440	999	0.90	19.68
	ELL	329	650.88	63.65	440	829	0.88	22.36
	Section 504	147	723.03	52.70	538	854	0.88	18.30
	Accommodated	1669	668.53	74.75	440	999	0.91	22.31

Table 39. Spring 2014, Subgroup Scale Score Mean Differences, *t*-test: Male/Female

Content	Form	*t*	Degrees of Freedom	Sig. (2-tailed)	Mean Difference	Standard Error Difference
Algebra I	A	13.89	27467.00	<.0001	10.27	61.59
	B	10.11	17234.39	<.0001	8.90	58.06
Algebra II	A	4.26	17453.77	<.0001	4.72	73.76
	B	3.13	11549.44	0.0017	4.23	73.15
Biology I	A	0.68	23273.12	0.4962	0.81	91.46
	B	-8.94	19269.85	<.0001	-10.76	83.88
English II	AA	17.61	10884.94	<.0001	27.34	81.94
	AB	19.69	10860.84	<.0001	30.92	82.50
	BA	16.15	9548.81	<.0001	23.95	72.95
	BB	12.86	9620.88	<.0001	19.68	75.32
English III	AA	13.49	8698.37	<.0001	18.79	65.56
	AB	13.02	8383.24	<.0001	18.43	65.25
	BA	10.25	7345.64	<.0001	13.74	57.56
	BB	9.73	7410.66	<.0001	12.94	57.49
Geometry	A	1.46	23286.64	0.1445	1.47	77.30
	B	0.94	15210.88	0.3448	1.09	71.25
U.S. History	A	-7.48	20384.24	<.0001	-7.04	67.64
	B	-16.09	16716.47	<.0001	-14.71	59.31

Table 40. Spring 2014, Subgroup Scale Score Mean Differences, *t*-test: IEP/Non IEP

Content	Form	*t*	Degrees of Freedom	Sig. (2-tailed)	Mean Difference	Standard Error Difference
Algebra I	A	-67.94	6035.20	<.0001	-69.49	56.15
	B	-34.23	1662.17	<.0001	-61.06	55.69
Algebra II	A	-36.72	1970.56	<.0001	-79.50	69.94
	B	-18.47	735.61	<.0001	-66.66	71.50
Biology I	A	-69.76	5725.34	<.0001	-105.20	82.16
	B	-36.45	1869.90	<.0001	-86.84	80.48
English II	AA	-46.91	2140.13	<.0001	-111.40	72.24
	AB	-46.73	2076.21	<.0001	-114.30	72.76
	BA	-34.68	1107.36	<.0001	-100.60	67.37
	BB	-35.32	1141.98	<.0001	-105.00	68.78
English III	AA	-41.84	1737.95	<.0001	-89.40	57.49
	AB	-40.00	1704.78	<.0001	-85.44	57.73
	BA	-29.67	948.67	<.0001	-72.22	53.30
	BB	-29.46	917.12	<.0001	-74.04	53.09
Geometry	A	-61.63	4052.88	<.0001	-95.60	69.82
	B	-32.32	1413.52	<.0001	-78.80	67.84
U.S. History	A	-53.26	4332.82	<.0001	-72.87	62.06
	B	-27.56	1510.80	<.0001	-57.91	57.62

Table 41. Spring 2014, Subgroup Scale Score Mean Differences, *t*-test: Free Lunch SES/Non Free Lunch

Content	Form	*t*	Degrees of Freedom	Sig. (2-tailed)	Mean Difference	Standard Error Difference
Algebra I	A	-43.45	27605.88	<.0001	-31.30	59.89
	B	-33.60	17311.45	<.0001	-28.75	56.43
Algebra II	A	-23.00	16702.14	<.0001	-25.29	72.73
	B	-18.80	11850.00	<.0001	-25.15	72.11
Biology I	A	-42.29	23387.54	<.0001	-48.75	88.22
	B	-39.86	19113.91	<.0001	-46.36	80.79
English II	AA	-29.48	11010.31	<.0001	-44.69	80.01
	AB	-27.00	10770.61	<.0001	-42.08	81.33
	BA	-25.65	9311.13	<.0001	-37.53	71.51
	BB	-28.13	9294.44	<.0001	-42.00	73.00
English III	AA	-21.15	8524.73	<.0001	-29.31	64.80
	AB	-19.06	8195.49	<.0001	-26.89	64.61
	BA	-21.16	6918.27	<.0001	-28.03	56.25
	BB	-20.78	7058.06	<.0001	-27.26	56.24
Geometry	A	-40.28	23009.34	<.0001	-39.50	74.86
	B	-30.96	14928.22	<.0001	-34.78	69.10
U.S. History	A	-36.62	19852.92	<.0001	-33.72	65.66
	B	-31.95	15251.35	<.0001	-29.06	58.00

Table 42. Spring 2014, Subgroup Scale Score Mean Differences, *t*-test: ELL/Non ELL

Content	Form	*t*	Degrees of Freedom	Sig. (2-tailed)	Mean Difference	Standard Error Difference
Algebra I	A	-16.48	27634.00	<.0001	-30.61	61.60
	B	-14.02	17403.00	<.0001	-34.41	57.91
Algebra II	A	-6.51	379.94	<.0001	-31.40	73.67
	B	-5.12	170.38	<.0001	-34.55	73.06
Biology I	A	-29.26	859.51	<.0001	-90.41	90.05
	B	-23.46	19381.00	<.0001	-93.02	82.88
English II	AA	-19.33	320.86	<.0001	-101.90	81.38
	AB	-18.49	10903.00	<.0001	-88.12	82.72
	BA	-15.73	191.66	<.0001	-96.05	72.74
	BB	-16.92	188.39	<.0001	-107.50	74.53
English III	AA	-16.28	8825.00	<.0001	-72.31	65.46
	AB	-15.63	8456.00	<.0001	-72.08	65.06
	BA	-13.53	175.78	<.0001	-76.78	56.79
	BB	-14.14	173.20	<.0001	-75.79	56.75
Geometry	A	-18.60	670.41	<.0001	-63.24	76.72
	B	-11.42	366.41	<.0001	-48.66	70.87
U.S. History	A	-21.59	549.81	<.0001	-71.67	66.82
	B	-19.28	339.30	<.0001	-68.23	59.01

Table 43. Spring 2014, Subgroup Scale Score Mean Differences, *t*-test: Section 504/Non Section 504

Content	Form	*t*	Degrees of Freedom	Sig. (2-tailed)	Mean Difference	Standard Error Difference
Algebra I	A	1.66	235.10	0.0976	5.96	61.90
	B	-1.88	17403.00	0.0603	-8.97	58.23
Algebra II	A	-0.92	17847.00	0.3584	-5.50	73.81
	B	0.62	11850.00	0.5332	4.72	73.18
Biology I	A	1.88	23406.00	0.0602	11.78	91.52
	B	1.33	19381.00	0.1833	8.20	84.04
English II	AA	0.73	11133.00	0.4662	5.85	83.07
	AB	1.69	112.62	0.0939	10.75	84.00
	BA	0.77	89.84	0.4438	4.61	73.93
	BB	0.04	9674.00	0.9651	0.37	75.96
English III	AA	0.83	73.89	0.4096	5.20	66.44
	AB	-0.70	66.65	0.4841	-4.55	65.99
	BA	-0.66	7357.00	0.5098	-4.59	57.97
	BB	-0.61	7494.00	0.5444	-5.03	57.86
Geometry	A	0.27	208.04	0.7910	1.22	77.41
	B	0.49	15241.00	0.6253	3.00	71.25
U.S. History	A	0.49	20596.00	0.6219	2.49	67.78
	B	1.21	149.33	0.2274	5.30	59.76

Table 44. Spring 2014, Subgroup Scale Score Mean Differences, *t*-test: Accommodated/Non Accommodated

Content	Form	*t*	Degrees of Freedom	Sig. (2-tailed)	Mean Difference	Standard Error Difference
Algebra I	A	-66.19	7126.32	<.0001	-64.63	56.38
	B	-34.15	2091.81	<.0001	-55.12	55.76
Algebra II	A	-34.75	2354.07	<.0001	-71.06	70.25
	B	-17.31	896.73	<.0001	-57.32	71.70
Biology I	A	-70.78	6612.75	<.0001	-102.80	81.70
	B	-36.46	2310.10	<.0001	-81.17	80.34
English II	AA	-47.48	2425.41	<.0001	-108.20	71.84
	AB	-46.53	2365.77	<.0001	-108.60	72.88
	BA	-35.12	1296.66	<.0001	-96.38	67.07
	BB	-35.67	1332.83	<.0001	-100.60	68.47
English III	AA	-42.18	1934.43	<.0001	-86.70	57.34
	AB	-40.74	1891.32	<.0001	-83.21	57.59
	BA	-30.60	1122.01	<.0001	-70.27	52.90
	BB	-30.66	1065.74	<.0001	-72.99	52.61
Geometry	A	-60.99	4717.99	<.0001	-90.09	69.92
	B	-31.19	1731.14	<.0001	-70.30	68.06
U.S. History	A	-54.64	4911.15	<.0001	-71.61	61.76
	B	-29.02	1874.02	<.0001	-54.66	57.49

Table 45. Spring 2014, Subgroup Mean Differences, ANOVA: Ethnicity

Content	Form	Dependent	Categories	Sum of Squares	DF	Mean Square	*F*	Sig.
Algebra I	A	SS	Between Groups	4400366	6	733394	200	<.0001
			Within Groups	101485100	27629	3673	.	.
			Total	105885466	27635	.	.	.
	B	SS	Between Groups	2743279	6	457213	141	<.0001
			Within Groups	56270393	17398	3234	.	.
			Total	59013671	17404	.	.	.
Algebra II	A	SS	Between Groups	2825799	6	470967	89	<.0001
			Within Groups	94394490	17842	5291	.	.
			Total	97220289	17848	.	.	.
	B	SS	Between Groups	2031556	6	338593	65	<.0001
			Within Groups	61423311	11845	5186	.	.
			Total	63454867	11851	.	.	.
Biology I	A	SS	Between Groups	10159884	6	1693314	213	<.0001
			Within Groups	185913561	23401	7945	.	.
			Total	196073445	23407	.	.	.
	B	SS	Between Groups	9752424	6	1625404	248	<.0001
			Within Groups	127149593	19376	6562	.	.
			Total	136902017	19382	.	.	.
Geometry	A	SS	Between Groups	7144491	6	1190749	209	<.0001
			Within Groups	133392490	23445	5690	.	.
			Total	140536982	23451	.	.	.
	B	SS	Between Groups	4635848	6	772641	162	<.0001
			Within Groups	72738074	15236	4774	.	.
			Total	77373922	15242	.	.	.

Table 45. Spring 2014, Subgroup Mean Differences, ANOVA: Ethnicity *(continued)*

Content	Form	Dependent	Categories	Sum of Squares	DF	Mean Square	*F*	Sig.
English II	AA	SS	Between Groups	3090878	6	515146	78	<.0001
			Within Groups	73741876	11128	6627	.	.
			Total	76832753	11134	.	.	.
	AB	SS	Between Groups	2491832	6	415305	61	<.0001
			Within Groups	74453198	10898	6832	.	.
			Total	76945030	10904	.	.	.
	BA	SS	Between Groups	2363308	6	393885	75	<.0001
			Within Groups	50466826	9661	5224	.	.
			Total	52830134	9667	.	.	.
	BB	SS	Between Groups	2845811	6	474302	87	<.0001
			Within Groups	52971074	9669	5478	.	.
			Total	55816884	9675	.	.	.
English III	AA	SS	Between Groups	979953	6	163326	38	<.0001
			Within Groups	37975273	8820	4306	.	.
			Total	38955226	8826	.	.	.
	AB	SS	Between Groups	918555	6	153093	36	<.0001
			Within Groups	35904206	8451	4249	.	.
			Total	36822760	8457	.	.	.
	BA	SS	Between Groups	1088870	6	181478	56	<.0001
			Within Groups	23632208	7352	3214	.	.
			Total	24721078	7358	.	.	.
	BB	SS	Between Groups	1181617	6	196936	62	<.0001
			Within Groups	23904790	7489	3192	.	.
			Total	25086407	7495	.	.	.
U.S. History	A	SS	Between Groups	3983913	6	663986	151	<.0001
			Within Groups	90635220	20591	4402	.	.
			Total	94619133	20597	.	.	.
	B	SS	Between Groups	2738107	6	456351	134	<.0001
			Within Groups	57368430	16823	3410	.	.
			Total	60106537	16829	.	.	.

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons

Content	Form	Dependent Variable	(I) Ethnicity	(J) Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
Algebra I	A	SS	African American	Native American	21.14(*)	2.58	17.29	25.00
				Hispanic	18.81(*)	2.58	14.80	22.82
				Asian	71.48(*)	2.58	64.48	78.48
				Pacific Islander	23.52(*)	2.58	6.10	40.94
				White	34.85(*)	2.58	31.53	38.18
				Other	29.45(*)	2.58	24.71	34.20
			Native American	African American	-21.14(*)	2.60	-25.04	-17.25
				Hispanic	-2.33	2.60	-5.86	1.20
				Asian	50.34(*)	2.60	43.55	57.13
				Pacific Islander	2.38	2.60	-15.11	19.86
				White	13.71(*)	2.60	11.00	16.42
				Other	8.31(*)	2.60	3.95	12.67
			Hispanic	African American	-18.81(*)	2.60	-22.85	-14.77
				Native American	2.33	2.60	-1.19	5.85
				Asian	52.67(*)	2.60	45.81	59.53
				Pacific Islander	4.71	2.60	-12.76	22.17
				White	16.05(*)	2.60	13.12	18.97
				Other	10.64(*)	2.60	6.15	15.13
			Asian	African American	-71.48(*)	2.45	-78.12	-64.84
				Native American	-50.34(*)	2.45	-56.71	-43.96
				Hispanic	-52.67(*)	2.45	-59.13	-46.21
				Pacific Islander	-47.96(*)	2.45	-65.30	-30.62
				White	-36.62(*)	2.45	-42.73	-30.52
				Other	-42.03(*)	2.45	-48.92	-35.13
			Pacific Islander	African American	-23.52(*)	2.19	-38.29	-8.74
				Native American	-2.38	2.19	-17.05	12.30
				Hispanic	-4.71	2.19	-19.42	10.00
				Asian	47.96(*)	2.19	32.47	63.46
				White	11.34	2.19	-3.25	25.92
				Other	5.94	2.19	-8.93	20.80
			White	African American	-34.85(*)	2.63	-38.25	-31.46
				Native American	-13.71(*)	2.63	-16.45	-10.98
				Hispanic	-16.05(*)	2.63	-19.00	-13.09
				Asian	36.62(*)	2.63	30.07	43.18
				Pacific Islander	-11.34	2.63	-28.87	6.19
				Other	-5.4(*)	2.63	-9.33	-1.48
			Other	African American	-29.45(*)	2.55	-34.15	-24.75
				Native American	-8.31(*)	2.55	-12.59	-4.04
				Hispanic	-10.64(*)	2.55	-15.06	-6.23
				Asian	42.03(*)	2.55	34.83	49.22
				Pacific Islander	-5.94	2.55	-23.30	11.43
				White	5.4(*)	2.55	1.59	9.22

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
Algebra I	B	SS	African American	Native American	20.17(*)	2.58	15.53	24.82
				Hispanic	17.57(*)	2.58	12.75	22.40
				Asian	71.3(*)	2.58	63.07	79.54
				Pacific Islander	25.84(*)	2.58	6.25	45.43
				White	34.18(*)	2.58	30.21	38.15
				Other	30.03(*)	2.58	24.46	35.60
			Native American	African American	-20.17(*)	2.60	-24.86	-15.48
				Hispanic	-2.60	2.60	-6.87	1.67
				Asian	51.13(*)	2.60	43.15	59.11
				Pacific Islander	5.67	2.60	-13.98	25.32
				White	14.01(*)	2.60	10.75	17.26
				Other	9.86(*)	2.60	4.74	14.97
			Hispanic	African American	-17.57(*)	2.59	-22.43	-12.71
				Native American	2.60	2.59	-1.65	6.86
				Asian	53.73(*)	2.59	45.67	61.80
				Pacific Islander	8.27	2.59	-11.36	27.90
				White	16.61(*)	2.59	13.10	20.11
				Other	12.46(*)	2.59	7.19	17.73
			Asian	African American	-71.3(*)	2.45	-79.13	-63.47
				Native American	-51.13(*)	2.45	-58.64	-43.62
				Hispanic	-53.73(*)	2.45	-61.34	-46.12
				Pacific Islander	-45.46(*)	2.45	-65.04	-25.88
				White	-37.12(*)	2.45	-44.28	-29.97
				Other	-41.27(*)	2.45	-49.33	-33.21
			Pacific Islander	African American	-25.84(*)	2.20	-42.54	-9.15
				Native American	-5.67	2.20	-22.25	10.91
				Hispanic	-8.27	2.20	-24.89	8.34
				Asian	45.46(*)	2.20	27.90	63.02
				White	8.34	2.20	-8.11	24.79
				Other	4.19	2.20	-12.60	20.97
			White	African American	-34.18(*)	2.63	-38.23	-30.13
				Native American	-14.01(*)	2.63	-17.29	-10.72
				Hispanic	-16.61(*)	2.63	-20.16	-13.06
				Asian	37.12(*)	2.63	29.44	44.80
				Pacific Islander	-8.34	2.63	-28.03	11.35
				Other	-4.15	2.63	-8.70	0.40
			Other	African American	-30.03(*)	2.56	-35.56	-24.50
				Native American	-9.86(*)	2.56	-14.88	-4.83
				Hispanic	-12.46(*)	2.56	-17.65	-7.26
				Asian	41.27(*)	2.56	32.85	49.69
				Pacific Islander	-4.19	2.56	-23.74	15.36
				White	4.15	2.56	-0.28	8.58

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
Algebra II	A	SS	African American	Native American	12.19(*)	2.58	6.42	17.95
				Hispanic	18.67(*)	2.58	12.60	24.73
				Asian	71.86(*)	2.58	61.98	81.74
				Pacific Islander	7.06	2.58	-18.65	32.77
				White	29.69(*)	2.58	24.75	34.63
				Other	18.56(*)	2.58	11.14	25.97
			Native American	African American	-12.19(*)	2.61	-18.01	-6.37
				Hispanic	6.48(*)	2.61	1.09	11.86
				Asian	59.67(*)	2.61	50.13	69.22
				Pacific Islander	-5.12	2.61	-30.92	20.67
				White	17.5(*)	2.61	13.45	21.56
				Other	6.37	2.61	-0.53	13.27
			Hispanic	African American	-18.67(*)	2.59	-24.76	-12.57
				Native American	-6.48(*)	2.59	-11.84	-1.12
				Asian	53.2(*)	2.59	43.51	62.89
				Pacific Islander	-11.60	2.59	-37.36	14.15
				White	11.03(*)	2.59	6.57	15.49
				Other	-0.11	2.59	-7.23	7.01
			Asian	African American	-71.86(*)	2.46	-81.30	-62.42
				Native American	-59.67(*)	2.46	-68.70	-50.65
				Hispanic	-53.2(*)	2.46	-62.40	-43.99
				Pacific Islander	-64.8(*)	2.46	-90.37	-39.23
				White	-42.17(*)	2.46	-50.74	-33.60
				Other	-53.3(*)	2.46	-63.37	-43.24
			Pacific Islander	African American	-7.06	2.19	-28.86	14.74
				Native American	5.12	2.19	-16.54	26.79
				Hispanic	11.60	2.19	-10.12	33.32
				Asian	64.8(*)	2.19	42.09	87.50
				White	22.63(*)	2.19	1.11	44.14
				Other	11.49	2.19	-10.52	33.51
			White	African American	-29.69(*)	2.63	-34.73	-24.65
				Native American	-17.5(*)	2.63	-21.60	-13.41
				Hispanic	-11.03(*)	2.63	-15.54	-6.51
				Asian	42.17(*)	2.63	33.03	51.31
				Pacific Islander	-22.63	2.63	-48.48	3.22
				Other	-11.13(*)	2.63	-17.40	-4.87
			Other	African American	-18.56(*)	2.54	-25.87	-11.25
				Native American	-6.37	2.54	-13.10	0.36
				Hispanic	0.11	2.54	-6.88	7.09
				Asian	53.3(*)	2.54	42.91	63.70
				Pacific Islander	-11.49	2.54	-37.10	14.11
				White	11.13(*)	2.54	5.07	17.20

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
Algebra II	B	SS	African American	Native American	15.01(*)	2.58	7.95	22.08
				Hispanic	17.35(*)	2.58	9.90	24.81
				Asian	71.27(*)	2.58	60.11	82.44
				Pacific Islander	27.63	2.58	-2.25	57.52
				White	31.5(*)	2.58	25.48	37.51
				Other	21.02(*)	2.58	11.97	30.08
			Native American	African American	-15.01(*)	2.60	-22.15	-7.88
				Hispanic	2.34	2.60	-4.35	9.03
				Asian	56.26(*)	2.60	45.54	66.98
				Pacific Islander	12.62	2.60	-17.35	42.59
				White	16.48(*)	2.60	11.49	21.47
				Other	6.01	2.60	-2.45	14.47
			Hispanic	African American	-17.35(*)	2.59	-24.85	-9.86
				Native American	-2.34	2.59	-9.00	4.31
				Asian	53.92(*)	2.59	42.98	64.86
				Pacific Islander	10.28	2.59	-19.65	40.21
				White	14.14(*)	2.59	8.63	19.66
				Other	3.67	2.59	-5.08	12.42
			Asian	African American	-71.27(*)	2.48	-82.02	-60.53
				Native American	-56.26(*)	2.48	-66.48	-46.04
				Hispanic	-53.92(*)	2.48	-64.40	-43.44
				Pacific Islander	-43.64(*)	2.48	-73.40	-13.88
				White	-39.78(*)	2.48	-49.36	-30.20
				Other	-50.25(*)	2.48	-61.83	-38.67
			Pacific Islander	African American	-27.63(*)	2.19	-53.02	-2.25
				Native American	-12.62	2.19	-37.84	12.60
				Hispanic	-10.28	2.19	-35.58	15.02
				Asian	43.64(*)	2.19	17.38	69.91
				White	3.86	2.19	-21.16	28.88
				Other	-6.61	2.19	-32.28	19.06
			White	African American	-31.5(*)	2.63	-37.63	-25.36
				Native American	-16.48(*)	2.63	-21.52	-11.44
				Hispanic	-14.14(*)	2.63	-19.74	-8.55
				Asian	39.78(*)	2.63	29.63	49.92
				Pacific Islander	-3.86	2.63	-33.89	26.16
				Other	-10.47(*)	2.63	-18.13	-2.81
			Other	African American	-21.02(*)	2.54	-29.94	-12.10
				Native American	-6.01	2.54	-14.27	2.25
				Hispanic	-3.67	2.54	-12.25	4.91
				Asian	50.25(*)	2.54	38.39	62.11
				Pacific Islander	6.61	2.54	-23.17	36.39
				White	10.47(*)	2.54	3.07	17.88

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
Biology I	A	SS	African American	Native American	43.48(*)	2.58	37.36	49.60
				Hispanic	27.06(*)	2.58	20.61	33.51
				Asian	83.74(*)	2.58	72.54	94.93
				Pacific Islander	36.51(*)	2.58	5.39	67.63
				White	63.33(*)	2.58	58.08	68.59
				Other	45.83(*)	2.58	38.02	53.63
			Native American	African American	-43.48(*)	2.61	-49.66	-37.30
				Hispanic	-16.42(*)	2.61	-22.15	-10.68
				Asian	40.26(*)	2.61	29.38	51.13
				Pacific Islander	-6.97	2.61	-38.24	24.30
				White	19.85(*)	2.61	15.53	24.17
				Other	2.35	2.61	-4.90	9.60
			Hispanic	African American	-27.06(*)	2.59	-33.55	-20.58
				Native American	16.42(*)	2.59	10.71	22.13
				Asian	56.68(*)	2.59	45.65	67.70
				Pacific Islander	9.45	2.59	-21.75	40.65
				White	36.27(*)	2.59	31.51	41.03
				Other	18.77(*)	2.59	11.26	26.27
			Asian	African American	-83.74(*)	2.45	-94.37	-73.11
				Native American	-40.26(*)	2.45	-50.48	-30.03
				Hispanic	-56.68(*)	2.45	-67.09	-46.27
				Pacific Islander	-47.23(*)	2.45	-77.95	-16.50
				White	-20.41(*)	2.45	-30.19	-10.62
				Other	-37.91(*)	2.45	-49.12	-26.69
			Pacific Islander	African American	-36.51(*)	2.17	-62.65	-10.37
				Native American	6.97	2.17	-19.04	32.99
				Hispanic	-9.45	2.17	-35.52	16.62
				Asian	47.23(*)	2.17	20.05	74.41
				White	26.82(*)	2.17	0.94	52.70
				Other	9.32	2.17	-17.01	35.65
			White	African American	-63.33(*)	2.63	-68.68	-57.98
				Native American	-19.85(*)	2.63	-24.21	-15.50
				Hispanic	-36.27(*)	2.63	-41.09	-31.44
				Asian	20.41(*)	2.63	9.91	30.90
				Pacific Islander	-26.82	2.63	-58.20	4.55
				Other	-17.5(*)	2.63	-24.08	-10.92
			Other	African American	-45.83(*)	2.55	-53.53	-38.13
				Native American	-2.35	2.55	-9.44	4.74
				Hispanic	-18.77(*)	2.55	-26.14	-11.40
				Asian	37.91(*)	2.55	26.25	49.57
				Pacific Islander	-9.32	2.55	-40.26	21.62
				White	17.5(*)	2.55	11.12	23.88

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
Biology I	B	SS	African American	Native American	38.32(*)	2.58	32.19	44.44
				Hispanic	20.24(*)	2.58	13.82	26.65
				Asian	86.41(*)	2.58	75.68	97.14
				Pacific Islander	40.04(*)	2.58	11.93	68.15
				White	63.61(*)	2.58	58.39	68.83
				Other	45.75(*)	2.58	37.92	53.58
			Native American	African American	-38.32(*)	2.60	-44.50	-32.14
				Hispanic	-18.08(*)	2.60	-23.84	-12.32
				Asian	48.09(*)	2.60	37.68	58.51
				Pacific Islander	1.72	2.60	-26.48	29.93
				White	25.3(*)	2.60	20.93	29.66
				Other	7.43(*)	2.60	0.11	14.76
			Hispanic	African American	-20.24(*)	2.59	-26.68	-13.79
				Native American	18.08(*)	2.59	12.34	23.82
				Asian	66.17(*)	2.59	55.62	76.72
				Pacific Islander	19.80	2.59	-8.36	47.97
				White	43.38(*)	2.59	38.63	48.13
				Other	25.51(*)	2.59	17.97	33.06
			Asian	African American	-86.41(*)	2.46	-96.63	-76.19
				Native American	-48.09(*)	2.46	-57.92	-38.26
				Hispanic	-66.17(*)	2.46	-76.17	-56.17
				Pacific Islander	-46.37(*)	2.46	-74.29	-18.45
				White	-22.8(*)	2.46	-32.14	-13.45
				Other	-40.66(*)	2.46	-51.53	-29.79
			Pacific Islander	African American	-40.04(*)	2.18	-63.82	-16.26
				Native American	-1.72	2.18	-25.37	21.93
				Hispanic	-19.80	2.18	-43.51	3.90
				Asian	46.37(*)	2.18	21.57	71.17
				White	23.57(*)	2.18	0.08	47.07
				Other	5.71	2.18	-18.30	29.72
			White	African American	-63.61(*)	2.63	-68.93	-58.30
				Native American	-25.3(*)	2.63	-29.70	-20.89
				Hispanic	-43.38(*)	2.63	-48.19	-38.56
				Asian	22.8(*)	2.63	12.81	32.79
				Pacific Islander	-23.57	2.63	-51.85	4.71
				Other	-17.86(*)	2.63	-24.50	-11.23
			Other	African American	-45.75(*)	2.55	-53.47	-38.03
				Native American	-7.43(*)	2.55	-14.59	-0.27
				Hispanic	-25.51(*)	2.55	-32.92	-18.11
				Asian	40.66(*)	2.55	29.40	51.91
				Pacific Islander	-5.71	2.55	-33.69	22.27
				White	17.86(*)	2.55	11.44	24.29

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
English II	AA	SS	African American	Native American	31.61(*)	2.58	23.44	39.78
				Hispanic	19.58(*)	2.58	10.88	28.28
				Asian	56.69(*)	2.58	41.88	71.50
				Pacific Islander	5.61	2.58	-33.92	45.13
				White	50.43(*)	2.58	43.32	57.54
				Other	29.84(*)	2.58	19.30	40.37
			Native American	African American	-31.61(*)	2.61	-39.88	-23.34
				Hispanic	-12.03(*)	2.61	-19.60	-4.46
				Asian	25.08(*)	2.61	10.78	39.38
				Pacific Islander	-26.00	2.61	-65.73	13.73
				White	18.82(*)	2.61	13.19	24.45
				Other	-1.77	2.61	-11.44	7.89
			Hispanic	African American	-19.58(*)	2.59	-28.33	-10.83
				Native American	12.03(*)	2.59	4.50	19.56
				Asian	37.11(*)	2.59	22.57	51.64
				Pacific Islander	-13.97	2.59	-53.61	25.66
				White	30.85(*)	2.59	24.50	37.20
				Other	10.25(*)	2.59	0.18	20.33
			Asian	African American	-56.69(*)	2.45	-70.78	-42.60
				Native American	-25.08(*)	2.45	-38.53	-11.63
				Hispanic	-37.11(*)	2.45	-50.85	-23.37
				Pacific Islander	-51.08(*)	2.45	-90.25	-11.91
				White	-6.26	2.45	-19.15	6.63
				Other	-26.85(*)	2.45	-41.71	-11.99
			Pacific Islander	African American	-5.61	2.18	-38.97	27.76
				Native American	26.00	2.18	-7.15	59.16
				Hispanic	13.97	2.18	-19.28	47.22
				Asian	51.08(*)	2.18	16.32	85.84
				White	44.82(*)	2.18	11.84	77.80
				Other	24.23	2.18	-9.40	57.85
			White	African American	-50.43(*)	2.63	-57.68	-43.18
				Native American	-18.82(*)	2.63	-24.49	-13.14
				Hispanic	-30.85(*)	2.63	-37.28	-24.41
				Asian	6.26	2.63	-7.55	20.07
				Pacific Islander	-44.82(*)	2.63	-84.65	-4.99
				Other	-20.59(*)	2.63	-29.43	-11.76
			Other	African American	-29.84(*)	2.55	-40.24	-19.43
				Native American	1.77	2.55	-7.66	11.21
				Hispanic	-10.25(*)	2.55	-20.14	-0.37
				Asian	26.85(*)	2.55	11.43	42.28
				Pacific Islander	-24.23	2.55	-63.57	15.11
				White	20.59(*)	2.55	12.03	29.16

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
English II	AB	SS	African American	Native American	26.89(*)	2.59	18.78	34.99
				Hispanic	9.05(*)	2.59	0.43	17.66
				Asian	62.88(*)	2.59	47.69	78.06
				Pacific Islander	-4.61	2.59	-44.80	35.57
				White	39.67(*)	2.59	32.72	46.61
				Other	21.72(*)	2.59	10.88	32.55
			Native American	African American	-26.89(*)	2.61	-35.06	-18.71
				Hispanic	-17.84(*)	2.61	-25.60	-10.09
				Asian	35.99(*)	2.61	21.18	50.80
				Pacific Islander	-31.50	2.61	-71.84	8.83
				White	12.78(*)	2.61	6.96	18.59
				Other	-5.17	2.61	-15.37	5.03
			Hispanic	African American	-9.05(*)	2.59	-17.69	-0.40
				Native American	17.84(*)	2.59	10.12	25.56
				Asian	53.83(*)	2.59	38.81	68.85
				Pacific Islander	-13.66	2.59	-53.91	26.59
				White	30.62(*)	2.59	24.14	37.10
				Other	12.67(*)	2.59	2.11	23.23
			Asian	African American	-62.88(*)	2.45	-77.27	-48.49
				Native American	-35.99(*)	2.45	-49.91	-22.07
				Hispanic	-53.83(*)	2.45	-68.02	-39.65
				Pacific Islander	-67.49(*)	2.45	-107.31	-27.68
				White	-23.21(*)	2.45	-36.56	-9.87
				Other	-41.16(*)	2.45	-56.66	-25.67
			Pacific Islander	African American	4.61	2.18	-29.26	38.48
				Native American	31.50	2.18	-2.21	65.21
				Hispanic	13.66	2.18	-20.14	47.46
				Asian	67.49(*)	2.18	32.09	102.90
				White	44.28(*)	2.18	10.75	77.81
				Other	26.33	2.18	-7.92	60.58
			White	African American	-39.67(*)	2.63	-46.73	-32.60
				Native American	-12.78(*)	2.63	-18.64	-6.91
				Hispanic	-30.62(*)	2.63	-37.19	-24.05
				Asian	23.21(*)	2.63	8.90	37.53
				Pacific Islander	-44.28(*)	2.63	-84.72	-3.83
				Other	-17.95(*)	2.63	-27.32	-8.58
			Other	African American	-21.72(*)	2.54	-32.36	-11.07
				Native American	5.17	2.54	-4.77	15.11
				Hispanic	-12.67(*)	2.54	-23.01	-2.33
				Asian	41.16(*)	2.54	25.10	57.22
				Pacific Islander	-26.33	2.54	-66.25	13.59
				White	17.95(*)	2.54	8.90	27.00

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
English II	BA	SS	African American	Native American	25.78(*)	2.58	18.09	33.47
				Hispanic	13.91(*)	2.58	5.79	22.03
				Asian	55.37(*)	2.58	42.14	68.61
				Pacific Islander	3.96	2.58	-33.15	41.06
				White	44.27(*)	2.58	37.71	50.83
				Other	31.26(*)	2.58	21.11	41.42
			Native American	African American	-25.78(*)	2.61	-33.54	-18.03
				Hispanic	-11.87(*)	2.61	-19.18	-4.57
				Asian	29.59(*)	2.61	16.76	42.42
				Pacific Islander	-21.83	2.61	-59.07	15.42
				White	18.48(*)	2.61	13.00	23.97
				Other	5.48	2.61	-4.07	15.03
			Hispanic	African American	-13.91(*)	2.59	-22.06	-5.76
				Native American	11.87(*)	2.59	4.60	19.15
				Asian	41.46(*)	2.59	28.43	54.50
				Pacific Islander	-9.95	2.59	-47.13	27.22
				White	30.36(*)	2.59	24.31	36.41
				Other	17.35(*)	2.59	7.50	27.21
			Asian	African American	-55.37(*)	2.47	-68.01	-42.73
				Native American	-29.59(*)	2.47	-41.73	-17.45
				Hispanic	-41.46(*)	2.47	-53.86	-29.07
				Pacific Islander	-51.42(*)	2.47	-88.15	-14.69
				White	-11.11	2.47	-22.63	0.42
				Other	-24.11(*)	2.47	-37.80	-10.42
			Pacific Islander	African American	-3.96	2.18	-35.21	27.29
				Native American	21.83	2.18	-9.27	52.92
				Hispanic	9.95	2.18	-21.22	41.13
				Asian	51.42(*)	2.18	19.03	83.81
				White	40.31(*)	2.18	9.40	71.22
				Other	27.31	2.18	-4.29	58.90
			White	African American	-44.27(*)	2.63	-50.94	-37.59
				Native American	-18.48(*)	2.63	-24.01	-12.95
				Hispanic	-30.36(*)	2.63	-36.49	-24.23
				Asian	11.11	2.63	-1.17	23.38
				Pacific Islander	-40.31(*)	2.63	-77.67	-2.96
				Other	-13(*)	2.63	-21.73	-4.28
			Other	African American	-31.26(*)	2.54	-41.24	-21.28
				Native American	-5.48	2.54	-14.78	3.82
				Hispanic	-17.35(*)	2.54	-27.00	-7.70
				Asian	24.11(*)	2.54	10.02	38.20
				Pacific Islander	-27.31	2.54	-64.18	9.56
				White	13(*)	2.54	4.58	21.43

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
English II	BB	SS	African American	Native American	30.02(*)	2.58	22.04	37.99
				Hispanic	12.5(*)	2.58	4.07	20.93
				Asian	58.37(*)	2.58	44.36	72.38
				Pacific Islander	20.40	2.58	-18.33	59.12
				White	48.5(*)	2.58	41.67	55.33
				Other	31.72(*)	2.58	21.32	42.11
			Native American	African American	-30.02(*)	2.61	-38.07	-21.96
				Hispanic	-17.52(*)	2.61	-25.02	-10.02
				Asian	28.35(*)	2.61	14.79	41.92
				Pacific Islander	-9.62	2.61	-48.51	29.28
				White	18.48(*)	2.61	12.88	24.09
				Other	1.70	2.61	-8.00	11.40
			Hispanic	African American	-12.5(*)	2.59	-20.97	-4.03
				Native American	17.52(*)	2.59	10.05	24.99
				Asian	45.87(*)	2.59	32.09	59.65
				Pacific Islander	7.90	2.59	-30.91	46.71
				White	36(*)	2.59	29.79	42.22
				Other	19.22(*)	2.59	9.19	29.25
			Asian	African American	-58.37(*)	2.46	-71.73	-45.01
				Native American	-28.35(*)	2.46	-41.16	-15.54
				Hispanic	-45.87(*)	2.46	-58.94	-32.80
				Pacific Islander	-37.97	2.46	-76.30	0.36
				White	-9.87	2.46	-22.06	2.32
				Other	-26.65(*)	2.46	-40.95	-12.35
			Pacific Islander	African American	-20.40	2.17	-53.03	12.23
				Native American	9.62	2.17	-22.84	42.07
				Hispanic	-7.90	2.17	-40.44	24.63
				Asian	37.97(*)	2.17	4.10	71.85
				White	28.10	2.17	-4.17	60.37
				Other	11.32	2.17	-21.62	44.25
			White	African American	-48.5(*)	2.63	-55.46	-41.54
				Native American	-18.48(*)	2.63	-24.14	-12.83
				Hispanic	-36(*)	2.63	-42.30	-29.70
				Asian	9.87	2.63	-3.16	22.90
				Pacific Islander	-28.10	2.63	-67.11	10.91
				Other	-16.78(*)	2.63	-25.62	-7.95
			Other	African American	-31.72(*)	2.54	-41.96	-21.48
				Native American	-1.70	2.54	-11.16	7.76
				Hispanic	-19.22(*)	2.54	-29.05	-9.39
				Asian	26.65(*)	2.54	11.88	41.43
				Pacific Islander	-11.32	2.54	-49.82	27.19
				White	16.78(*)	2.54	8.24	25.33

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
English III	AA	SS	African American	Native American	19.99(*)	2.58	12.67	27.31
				Hispanic	15.94(*)	2.58	8.07	23.82
				Asian	30.43(*)	2.58	16.23	44.64
				Pacific Islander	3.79	2.58	-27.67	35.24
				White	33.36(*)	2.58	26.93	39.79
				Other	24.15(*)	2.58	14.63	33.68
			Native American	African American	-19.99(*)	2.61	-27.40	-12.58
				Hispanic	-4.05	2.61	-10.85	2.76
				Asian	10.44	2.61	-3.32	24.20
				Pacific Islander	-16.21	2.61	-47.77	15.36
				White	13.37(*)	2.61	8.36	18.38
				Other	4.16	2.61	-4.54	12.86
			Hispanic	African American	-15.94(*)	2.59	-23.87	-8.02
				Native American	4.05	2.59	-2.71	10.81
				Asian	14.49(*)	2.59	0.51	28.47
				Pacific Islander	-12.16	2.59	-43.67	19.35
				White	17.41(*)	2.59	11.64	23.19
				Other	8.21	2.59	-0.92	17.33
			Asian	African American	-30.43(*)	2.44	-43.86	-17.01
				Native American	-10.44	2.44	-23.29	2.41
				Hispanic	-14.49(*)	2.44	-27.63	-1.35
				Pacific Islander	-26.65	2.44	-58.30	5.00
				White	2.93	2.44	-9.49	15.34
				Other	-6.28	2.44	-20.37	7.80
			Pacific Islander	African American	-3.79	2.21	-30.71	23.14
				Native American	16.21	2.21	-10.48	42.90
				Hispanic	12.16	2.21	-14.65	38.97
				Asian	26.65	2.21	-2.00	55.30
				White	29.57(*)	2.21	3.05	56.10
				Other	20.37	2.21	-6.83	47.56
			White	African American	-33.36(*)	2.63	-39.91	-26.81
				Native American	-13.37(*)	2.63	-18.41	-8.32
				Hispanic	-17.41(*)	2.63	-23.27	-11.56
				Asian	-2.93	2.63	-16.32	10.47
				Pacific Islander	-29.57	2.63	-61.17	2.02
				Other	-9.21(*)	2.63	-17.21	-1.21
			Other	African American	-24.15(*)	2.55	-33.56	-14.75
				Native American	-4.16	2.55	-12.65	4.33
				Hispanic	-8.21	2.55	-17.17	0.75
				Asian	6.28	2.55	-8.43	21.00
				Pacific Islander	-20.37	2.55	-51.75	11.02
				White	9.21(*)	2.55	1.46	16.96

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
English III	AB	SS	African American	Native American	15.74(*)	2.58	8.42	23.06
				Hispanic	11.06(*)	2.58	3.25	18.87
				Asian	29.23(*)	2.58	14.85	43.61
				Pacific Islander	12.17	2.58	-22.01	46.34
				White	29.96(*)	2.58	23.62	36.31
				Other	12.38(*)	2.58	2.61	22.15
			Native American	African American	-15.74(*)	2.61	-23.13	-8.35
				Hispanic	-4.68	2.61	-11.58	2.22
				Asian	13.49	2.61	-0.52	27.50
				Pacific Islander	-3.57	2.61	-37.87	30.73
				White	14.22(*)	2.61	9.08	19.37
				Other	-3.36	2.61	-12.46	5.73
			Hispanic	African American	-11.06(*)	2.60	-18.91	-3.21
				Native American	4.68	2.60	-2.19	11.54
				Asian	18.17(*)	2.60	3.96	32.37
				Pacific Islander	1.11	2.60	-33.12	35.34
				White	18.9(*)	2.60	13.10	24.71
				Other	1.32	2.60	-8.14	10.77
			Asian	African American	-29.23(*)	2.44	-42.81	-15.65
				Native American	-13.49(*)	2.44	-26.59	-0.39
				Hispanic	-18.17(*)	2.44	-31.52	-4.82
				Pacific Islander	-17.06	2.44	-51.19	17.07
				White	0.73	2.44	-11.90	13.37
				Other	-16.85(*)	2.44	-31.30	-2.40
			Pacific Islander	African American	-12.17	2.19	-41.20	16.86
				Native American	3.57	2.19	-25.28	32.42
				Hispanic	-1.11	2.19	-30.05	27.83
				Asian	17.06	2.19	-13.64	47.77
				White	17.79	2.19	-10.89	46.48
				Other	0.21	2.19	-29.16	29.58
			White	African American	-29.96(*)	2.63	-36.42	-23.51
				Native American	-14.22(*)	2.63	-19.41	-9.04
				Hispanic	-18.9(*)	2.63	-24.78	-13.02
				Asian	-0.73	2.63	-14.36	12.89
				Pacific Islander	-17.79	2.63	-52.16	16.57
				Other	-17.58(*)	2.63	-25.96	-9.20
			Other	African American	-12.38(*)	2.54	-21.99	-2.77
				Native American	3.36	2.54	-5.50	12.22
				Hispanic	-1.32	2.54	-10.58	7.94
				Asian	16.85(*)	2.54	1.79	31.91
				Pacific Islander	-0.21	2.54	-34.23	33.81
				White	17.58(*)	2.54	9.48	25.69

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
English III	BA	SS	African American	Native American	24.05(*)	2.58	17.09	31.01
				Hispanic	12.17(*)	2.58	4.87	19.46
				Asian	23.47(*)	2.58	10.28	36.66
				Pacific Islander	-14.54	2.58	-43.77	14.68
				White	35.89(*)	2.58	29.92	41.86
				Other	25.28(*)	2.58	16.39	34.18
			Native American	African American	-24.05(*)	2.61	-31.08	-17.02
				Hispanic	-11.88(*)	2.61	-18.37	-5.40
				Asian	-0.58	2.61	-13.43	12.27
				Pacific Islander	-38.6(*)	2.61	-67.89	-9.30
				White	11.84(*)	2.61	6.92	16.75
				Other	1.23	2.61	-7.04	9.50
			Hispanic	African American	-12.17(*)	2.60	-19.50	-4.83
				Native American	11.88(*)	2.60	5.42	18.34
				Asian	11.30	2.60	-1.69	24.29
				Pacific Islander	-26.71	2.60	-55.98	2.55
				White	23.72(*)	2.60	18.36	29.09
				Other	13.11(*)	2.60	4.59	21.64
			Asian	African American	-23.47(*)	2.44	-35.94	-11.00
				Native American	0.58	2.44	-11.45	12.61
				Hispanic	-11.30	2.44	-23.51	0.91
				Pacific Islander	-38.01(*)	2.44	-67.42	-8.61
				White	12.42(*)	2.44	0.88	23.97
				Other	1.81	2.44	-11.31	14.93
			Pacific Islander	African American	14.54	2.21	-10.46	39.55
				Native American	38.6(*)	2.21	13.77	63.42
				Hispanic	26.71(*)	2.21	1.81	51.61
				Asian	38.01(*)	2.21	11.40	64.63
				White	50.43(*)	2.21	25.80	75.07
				Other	39.83(*)	2.21	14.55	65.10
			White	African American	-35.89(*)	2.63	-41.97	-29.81
				Native American	-11.84(*)	2.63	-16.80	-6.88
				Hispanic	-23.72(*)	2.63	-29.16	-18.29
				Asian	-12.42	2.63	-24.86	0.02
				Pacific Islander	-50.43(*)	2.63	-79.76	-21.11
				Other	-10.61(*)	2.63	-18.12	-3.10
			Other	African American	-25.28(*)	2.55	-34.06	-16.50
				Native American	-1.23	2.55	-9.32	6.86
				Hispanic	-13.11(*)	2.55	-21.48	-4.75
				Asian	-1.81	2.55	-15.51	11.89
				Pacific Islander	-39.83(*)	2.55	-68.98	-10.67
				White	10.61(*)	2.55	3.33	17.88

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
English III	BB	SS	African American	Native American	25.61(*)	2.58	18.72	32.50
				Hispanic	12.26(*)	2.58	5.04	19.48
				Asian	30.38(*)	2.58	17.81	42.95
				Pacific Islander	-0.16	2.58	-34.96	34.63
				White	37.56(*)	2.58	31.62	43.51
				Other	27.45(*)	2.58	18.52	36.38
			Native American	African American	-25.61(*)	2.61	-32.57	-18.65
				Hispanic	-13.35(*)	2.61	-19.71	-6.98
				Asian	4.77	2.61	-7.41	16.96
				Pacific Islander	-25.77	2.61	-60.74	9.20
				White	11.96(*)	2.61	7.14	16.78
				Other	1.85	2.61	-6.44	10.13
			Hispanic	African American	-12.26(*)	2.60	-19.53	-4.99
				Native American	13.35(*)	2.60	7.01	19.68
				Asian	18.12(*)	2.60	5.79	30.45
				Pacific Islander	-12.42	2.60	-47.32	22.48
				White	25.3(*)	2.60	20.03	30.58
				Other	15.19(*)	2.60	6.66	23.73
			Asian	African American	-30.38(*)	2.45	-42.32	-18.44
				Native American	-4.77	2.45	-16.24	6.69
				Hispanic	-18.12(*)	2.45	-29.77	-6.47
				Pacific Islander	-30.54	2.45	-64.92	3.84
				White	7.18	2.45	-3.79	18.16
				Other	-2.93	2.45	-15.60	9.75
			Pacific Islander	African American	0.16	2.17	-29.10	29.42
				Native American	25.77	2.17	-3.34	54.87
				Hispanic	12.42	2.17	-16.74	41.58
				Asian	30.54(*)	2.17	0.12	60.96
				White	37.73(*)	2.17	8.77	66.68
				Other	27.62	2.17	-1.88	57.11
			White	African American	-37.56(*)	2.63	-43.62	-31.51
				Native American	-11.96(*)	2.63	-16.82	-7.09
				Hispanic	-25.3(*)	2.63	-30.65	-19.96
				Asian	-7.18	2.63	-18.95	4.58
				Pacific Islander	-37.73(*)	2.63	-72.81	-2.64
				Other	-10.11(*)	2.63	-17.67	-2.55
			Other	African American	-27.45(*)	2.54	-36.26	-18.65
				Native American	-1.85	2.54	-9.93	6.24
				Hispanic	-15.19(*)	2.54	-23.56	-6.83
				Asian	2.93	2.54	-10.22	16.07
				Pacific Islander	-27.62	2.54	-62.20	6.97
				White	10.11(*)	2.54	2.79	17.43

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
Geometry	A	SS	African American	Native American	30.55(*)	2.58	25.39	35.70
				Hispanic	23.58(*)	2.58	18.13	29.03
				Asian	89.04(*)	2.58	79.75	98.33
				Pacific Islander	21.34	2.58	-2.62	45.30
				White	49.26(*)	2.58	44.84	53.67
				Other	37.97(*)	2.58	31.39	44.54
			Native American	African American	-30.55(*)	2.61	-35.75	-25.34
				Hispanic	-6.97(*)	2.61	-11.84	-2.09
				Asian	58.5(*)	2.61	49.47	67.52
				Pacific Islander	-9.21	2.61	-33.25	14.84
				White	18.71(*)	2.61	15.05	22.37
				Other	7.42(*)	2.61	1.29	13.55
			Hispanic	African American	-23.58(*)	2.59	-29.06	-18.11
				Native American	6.97(*)	2.59	2.11	11.82
				Asian	65.46(*)	2.59	56.31	74.62
				Pacific Islander	-2.24	2.59	-26.24	21.76
				White	25.68(*)	2.59	21.63	29.73
				Other	14.39(*)	2.59	8.03	20.74
			Asian	African American	-89.04(*)	2.45	-97.87	-80.21
				Native American	-58.5(*)	2.45	-66.99	-50.00
				Hispanic	-65.46(*)	2.45	-74.12	-56.80
				Pacific Islander	-67.7(*)	2.45	-91.51	-43.90
				White	-39.78(*)	2.45	-47.89	-31.67
				Other	-51.07(*)	2.45	-60.42	-41.73
			Pacific Islander	African American	-21.34(*)	2.18	-41.61	-1.07
				Native American	9.21	2.18	-10.95	29.36
				Hispanic	2.24	2.18	-17.97	22.45
				Asian	67.7(*)	2.18	46.51	88.89
				White	27.92(*)	2.18	7.89	47.95
				Other	16.63	2.18	-3.82	37.08
			White	African American	-49.26(*)	2.63	-53.75	-44.76
				Native American	-18.71(*)	2.63	-22.41	-15.02
				Hispanic	-25.68(*)	2.63	-29.79	-21.57
				Asian	39.78(*)	2.63	31.09	48.47
				Pacific Islander	-27.92(*)	2.63	-52.03	-3.81
				Other	-11.29(*)	2.63	-16.85	-5.73
			Other	African American	-37.97(*)	2.55	-44.46	-31.48
				Native American	-7.42(*)	2.55	-13.42	-1.43
				Hispanic	-14.39(*)	2.55	-20.63	-8.14
				Asian	51.07(*)	2.55	41.37	60.77
				Pacific Islander	-16.63	2.55	-40.48	7.23
				White	11.29(*)	2.55	5.90	16.68

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
Geometry	B	SS	African American	Native American	30.94(*)	2.58	25.11	36.78
				Hispanic	21.32(*)	2.58	15.20	27.44
				Asian	87.78(*)	2.58	77.26	98.29
				Pacific Islander	13.00	2.58	-15.24	41.24
				White	48.32(*)	2.58	43.34	53.30
				Other	41.99(*)	2.58	34.56	49.42
			Native American	African American	-30.94(*)	2.60	-36.83	-25.06
				Hispanic	-9.63(*)	2.60	-15.13	-4.12
				Asian	56.83(*)	2.60	46.60	67.07
				Pacific Islander	-17.94	2.60	-46.29	10.40
				White	17.38(*)	2.60	13.20	21.55
				Other	11.05(*)	2.60	4.10	18.01
			Hispanic	African American	-21.32(*)	2.59	-27.47	-15.17
				Native American	9.63(*)	2.59	4.14	15.11
				Asian	66.46(*)	2.59	56.10	76.82
				Pacific Islander	-8.32	2.59	-36.61	19.98
				White	27(*)	2.59	22.45	31.55
				Other	20.68(*)	2.59	13.51	27.85
			Asian	African American	-87.78(*)	2.45	-97.77	-77.79
				Native American	-56.83(*)	2.45	-66.47	-47.20
				Hispanic	-66.46(*)	2.45	-76.25	-56.67
				Pacific Islander	-74.78(*)	2.45	-102.74	-46.81
				White	-39.46(*)	2.45	-48.65	-30.27
				Other	-45.78(*)	2.45	-56.37	-35.20
			Pacific Islander	African American	-13.00	2.18	-36.80	10.80
				Native American	17.94	2.18	-5.74	41.62
				Hispanic	8.32	2.18	-15.42	32.05
				Asian	74.78(*)	2.18	49.97	99.58
				White	35.32(*)	2.18	11.77	58.86
				Other	28.99(*)	2.18	5.00	52.99
			White	African American	-48.32(*)	2.63	-53.39	-43.25
				Native American	-17.38(*)	2.63	-21.59	-13.16
				Hispanic	-27(*)	2.63	-31.61	-22.39
				Asian	39.46(*)	2.63	29.61	49.31
				Pacific Islander	-35.32(*)	2.63	-63.75	-6.88
				Other	-6.32(*)	2.63	-12.62	-0.03
			Other	African American	-41.99(*)	2.55	-49.32	-34.66
				Native American	-11.05(*)	2.55	-17.85	-4.25
				Hispanic	-20.68(*)	2.55	-27.71	-13.64
				Asian	45.78(*)	2.55	34.80	56.77
				Pacific Islander	-28.99(*)	2.55	-57.08	-0.90
				White	6.32(*)	2.55	0.22	12.43

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
U.S. History	A	SS	African American	Native American	23(*)	2.58	18.10	27.91
				Hispanic	12.88(*)	2.58	7.68	18.07
				Asian	54(*)	2.58	45.30	62.70
				Pacific Islander	7.38	2.58	-13.73	28.50
				White	39.65(*)	2.58	35.44	43.86
				Other	27.24(*)	2.58	21.04	33.44
			Native American	African American	-23(*)	2.61	-27.96	-18.05
				Hispanic	-10.13(*)	2.61	-14.75	-5.50
				Asian	31(*)	2.61	22.57	39.42
				Pacific Islander	-15.62	2.61	-36.80	5.56
				White	16.65(*)	2.61	13.20	20.09
				Other	4.24	2.61	-1.51	9.99
			Hispanic	African American	-12.88(*)	2.59	-18.10	-7.65
				Native American	10.13(*)	2.59	5.53	14.73
				Asian	41.12(*)	2.59	32.56	49.69
				Pacific Islander	-5.50	2.59	-26.64	15.65
				White	26.77(*)	2.59	22.93	30.61
				Other	14.37(*)	2.59	8.39	20.34
			Asian	African American	-54(*)	2.45	-62.28	-45.72
				Native American	-31(*)	2.45	-38.94	-23.06
				Hispanic	-41.12(*)	2.45	-49.23	-33.01
				Pacific Islander	-46.62(*)	2.45	-67.71	-25.52
				White	-14.35(*)	2.45	-21.92	-6.78
				Other	-26.76(*)	2.45	-35.48	-18.03
			Pacific Islander	African American	-7.38	2.20	-25.36	10.60
				Native American	15.62	2.20	-2.23	33.48
				Hispanic	5.50	2.20	-12.42	23.41
				Asian	46.62(*)	2.20	27.74	65.49
				White	32.27(*)	2.20	14.54	50.00
				Other	19.86(*)	2.20	1.71	38.01
			White	African American	-39.65(*)	2.63	-43.94	-35.36
				Native American	-16.65(*)	2.63	-20.12	-13.17
				Hispanic	-26.77(*)	2.63	-30.67	-22.88
				Asian	14.35(*)	2.63	6.24	22.45
				Pacific Islander	-32.27(*)	2.63	-53.48	-11.06
				Other	-12.41(*)	2.63	-17.61	-7.21
			Other	African American	-27.24(*)	2.55	-33.37	-21.12
				Native American	-4.24	2.55	-9.86	1.38
				Hispanic	-14.37(*)	2.55	-20.24	-8.49
				Asian	26.76(*)	2.55	17.70	35.81
				Pacific Islander	-19.86	2.55	-40.91	1.19
				White	12.41(*)	2.55	7.37	17.45

(*) Significant differences

Table 46. Ethnic Pair-wise Dunnett's C Post-hoc Comparisons *(continued)*

Content	Form	Dependent Variable	(I)Ethnicity	(J)Ethnicity	Mean Difference (J-I)	Dunnett's C	95% Confidence Interval	
							Lower Bound	Upper Bound
U.S. History	B	SS	African American	Native American	23.73(*)	2.58	18.89	28.57
				Hispanic	13.79(*)	2.58	8.74	18.84
				Asian	40.29(*)	2.58	32.01	48.57
				Pacific Islander	12.11	2.58	-11.42	35.65
				White	38.43(*)	2.58	34.29	42.58
				Other	25.3(*)	2.58	19.36	31.24
			Native American	African American	-23.73(*)	2.60	-28.62	-18.84
				Hispanic	-9.94(*)	2.60	-14.41	-5.48
				Asian	16.56(*)	2.60	8.56	24.56
				Pacific Islander	-11.62	2.60	-35.27	12.04
				White	14.7(*)	2.60	11.31	18.09
				Other	1.57	2.60	-3.90	7.04
			Hispanic	African American	-13.79(*)	2.59	-18.87	-8.71
				Native American	9.94(*)	2.59	5.49	14.40
				Asian	26.5(*)	2.59	18.40	34.61
				Pacific Islander	-1.67	2.59	-25.28	21.94
				White	24.65(*)	2.59	20.97	28.32
				Other	11.51(*)	2.59	5.87	17.16
			Asian	African American	-40.29(*)	2.46	-48.20	-32.38
				Native American	-16.56(*)	2.46	-24.12	-9.00
				Hispanic	-26.5(*)	2.46	-34.19	-18.82
				Pacific Islander	-28.18(*)	2.46	-51.43	-4.92
				White	-1.86	2.46	-9.03	5.31
				Other	-14.99(*)	2.46	-23.23	-6.75
			Pacific Islander	African American	-12.11	2.17	-31.91	7.68
				Native American	11.62	2.17	-8.07	31.30
				Hispanic	1.67	2.17	-18.05	21.40
				Asian	28.18(*)	2.17	7.70	48.66
				White	26.32(*)	2.17	6.75	45.89
				Other	13.19	2.17	-6.71	33.09
			White	African American	-38.43(*)	2.63	-42.66	-34.21
				Native American	-14.7(*)	2.63	-18.12	-11.28
				Hispanic	-24.65(*)	2.63	-28.37	-20.92
				Asian	1.86	2.63	-5.80	9.52
				Pacific Islander	-26.32(*)	2.63	-50.06	-2.58
				Other	-13.13(*)	2.63	-18.03	-8.23
			Other	African American	-25.3(*)	2.55	-31.19	-19.42
				Native American	-1.57	2.55	-6.94	3.79
				Hispanic	-11.51(*)	2.55	-17.07	-5.96
				Asian	14.99(*)	2.55	6.44	23.54
				Pacific Islander	-13.19	2.55	-36.63	10.25
				White	13.13(*)	2.55	8.37	17.89

(*) Significant differences

Table 47. Spring 2014, Mean Scale Score and Standard Deviations for State and Each Proficiency Level

Content	Form	N	Total		Pass		Unsatisfactory		Limited		Proficient		Advanced	
		Count	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Algebra I	A	28026	728.52	61.99	756.58	39.11	611.83	52.61	683.59	11.33	732.81	16.84	794.32	34.44
	B	17657	737.48	58.31	759.28	40.71	615.74	50.48	684.21	11.31	733.81	16.87	795.93	36.83
Algebra II	A	18027	737.44	73.87	768.01	47.47	590.82	63.46	679.16	13.24	742.61	23.22	823.62	38.76
	B	11933	740.97	73.25	768.94	48.36	591.33	63.87	680.00	12.95	742.09	23.61	824.05	38.45
Biology	A	23695	683.95	91.66	757.60	47.24	574.99	61.10	673.98	14.38	732.99	21.56	816.55	39.20
	B	19602	697.32	84.16	759.82	49.85	590.77	55.17	674.85	13.68	732.46	20.41	817.88	43.76
English II	AA	11554	748.78	84.50	781.90	49.98	526.68	60.41	666.83	25.82	762.51	32.41	856.26	32.87
	AB	11211	749.77	84.32	782.59	50.27	524.29	59.25	666.84	25.86	760.42	30.14	852.84	34.17
	BA	9980	762.26	74.71	785.03	51.15	550.11	54.40	665.95	23.09	761.82	31.88	853.03	33.20
	BB	9945	761.34	76.72	785.18	51.61	540.62	55.33	664.06	25.04	762.84	32.13	856.28	34.79
English III	AA	9254	757.98	67.89	778.23	43.91	606.68	61.59	685.75	8.09	756.57	26.48	833.03	29.06
	AB	8731	759.16	66.46	778.99	43.06	605.56	59.40	686.36	9.76	756.40	25.63	830.54	27.62
	BA	7681	763.89	58.48	777.67	42.84	625.24	49.75	686.47	7.57	757.38	26.83	832.53	26.98
	BB	7713	765.52	58.33	778.42	43.22	619.58	49.95	683.99	7.75	756.24	26.86	830.35	26.53
Geometry	A	23802	750.34	77.49	778.74	51.36	572.10	61.25	672.76	18.53	742.72	21.40	822.53	42.34
	B	15442	754.67	71.26	778.29	49.75	581.74	57.18	675.03	17.21	742.80	21.28	820.98	39.63
U.S. History	A	20846	708.69	67.87	736.09	43.31	580.40	54.83	654.07	10.40	701.26	16.15	766.82	35.85
	B	17033	717.35	60.04	737.11	41.95	588.31	49.22	653.57	9.98	702.53	16.79	767.07	33.27

Table 48. Spring 2014, State Proficiency Level Impact Data

Content	Form	N Count	Pass	Unsatisfactory	Limited Knowledge	Proficient	Advanced
Algebra I	A	27636	72.70	10.90	16.40	44.60	28.10
	B	17405	78.10	7.40	14.50	46.00	32.10
Algebra II	A	17849	75.50	9.90	14.60	51.80	23.70
	B	11852	77.80	9.20	13.10	52.30	25.50
Biology I	A	23408	47.80	29.90	22.30	33.70	14.10
	B	19383	51.50	25.10	23.30	35.00	16.50
English II	AA	11135	79.30	5.50	15.20	62.90	16.40
	AB	10905	78.90	5.60	15.60	59.90	19.00
	BA	9668	84.90	3.50	11.60	63.10	21.80
	BB	9676	84.60	3.60	11.90	64.20	20.40
English III	AA	8827	86.30	8.00	5.70	61.60	24.70
	AB	8458	85.80	7.60	6.60	59.60	26.20
	BA	7359	89.30	5.90	4.80	65.00	24.30
	BB	7496	90.00	5.10	4.80	63.00	27.00
Geometry	A	23452	79.80	6.70	13.50	43.70	36.10
	B	15243	82.00	5.20	12.80	44.60	37.40
U.S. History	A	20598	77.10	11.30	11.70	36.00	41.10
	B	16830	82.30	7.20	10.60	38.10	44.20

Table 49. Spring 2014, State and Subgroup Proficiency Level Impact Data, Algebra I

Form	Subgroup	N Count	Pass	Limited Unsatisfactory	Limited Knowledge	Proficient	Advanced
A	Whole State	27636	72.70	10.90	16.40	44.60	28.10
	Female	13407	76.50	8.20	15.20	46.10	30.40
	Male	14192	69.20	13.40	17.50	43.20	26.00
	Native American	4489	69.70	12.40	17.90	46.60	23.10
	African American	2648	56.60	20.20	23.20	42.80	13.80
	Asian	619	88.20	3.40	8.40	32.30	55.90
	Hispanic	3671	68.30	11.70	20.00	46.70	21.60
	White	14472	77.10	8.70	14.20	44.30	32.80
	Other	1654	72.70	12.40	15.00	44.00	28.70
	Pacific Islander	83	66.30	15.70	18.10	42.20	24.10
	IEP	4676	32.50	37.10	30.50	27.30	5.20
	Low SES	14234	63.80	15.00	21.10	45.40	18.40
	ELL	1148	53.30	20.00	26.70	41.50	11.80
	Section 504	231	77.50	7.40	15.20	48.90	28.60
	Accommodated	5357	36.60	34.20	29.30	29.80	6.80
B	Whole State	17405	78.10	7.40	14.50	46.00	32.10
	Female	8782	81.20	5.80	13.00	46.80	34.40
	Male	8623	75.00	9.10	16.00	45.10	29.90
	Native American	2689	74.30	8.40	17.20	49.30	25.00
	African American	1618	63.80	15.30	20.90	47.60	16.20
	Asian	398	93.30	1.30	5.50	30.70	62.60
	Hispanic	2223	72.60	9.30	18.10	46.50	26.10
	White	9355	82.10	5.70	12.20	45.40	36.70
	Other	1066	79.70	6.50	13.90	44.40	35.30
	Pacific Islander	56	78.60	10.70	10.70	51.80	26.80
	IEP	1474	41.60	31.80	26.60	33.90	7.70
	Low SES	8687	70.10	10.90	19.00	47.50	22.60
	ELL	576	55.90	16.10	28.00	43.60	12.30
	Section 504	150	74.70	5.30	20.00	50.00	24.70
	Accommodated	1800	46.30	27.70	26.00	36.80	9.50

Table 50. Spring 2014, State and Subgroup Proficiency Level Impact Data, Algebra II

Form	Subgroup	N Count	Pass	Unsatisfactory	Limited Knowledge	Proficient	Advanced
A	Whole State	17849	75.50	9.90	14.60	51.80	23.70
	Female	9251	76.90	8.90	14.10	52.80	24.10
	Male	8587	74.00	10.90	15.20	50.70	23.30
	Native American	2897	71.10	11.40	17.50	52.60	18.50
	African American	1709	65.50	16.50	18.00	52.50	13.00
	Asian	447	89.70	3.10	7.20	39.10	50.60
	Hispanic	2199	74.20	9.50	16.30	54.10	20.10
	White	9647	78.40	8.50	13.10	51.70	26.70
	Other	900	73.30	11.70	15.00	49.00	24.30
	Pacific Islander	50	68.00	16.00	16.00	44.00	24.00
	IEP	1740	38.10	36.10	25.80	33.30	4.80
	Low SES	7879	69.20	12.90	17.90	52.00	17.20
	ELL	371	58.50	19.10	22.40	40.40	18.10
	Section 504	153	69.30	7.20	23.50	45.80	23.50
	Accommodated	2044	42.40	32.20	25.30	35.00	7.40
B	Whole State	11852	77.80	9.20	13.10	52.30	25.50
	Female	6189	79.10	8.30	12.60	53.40	25.70
	Male	5663	76.30	10.10	13.60	51.00	25.30
	Native American	1854	73.30	10.80	15.90	53.10	20.20
	African American	1130	68.40	15.00	16.60	54.30	14.10
	Asian	355	91.50	3.10	5.40	38.30	53.20
	Hispanic	1395	76.50	10.30	13.20	56.60	19.90
	White	6487	80.30	7.70	11.90	51.40	28.90
	Other	593	75.70	9.40	14.80	53.10	22.60
	Pacific Islander	38	84.20	10.50	5.30	52.60	31.60
	IEP	688	48.00	30.50	21.50	40.30	7.70
	Low SES	5099	71.70	12.30	16.10	53.00	18.70
	ELL	168	58.90	22.00	19.00	44.60	14.30
	Section 504	94	78.80	5.30	16.00	51.10	27.70
	Accommodated	827	51.90	27.20	20.90	41.40	10.50

Table 51. Spring 2014, State and Subgroup Proficiency Level Impact Data, Biology I

Form	Subgroup	N Count	Pass	Unsatisfactory	Limited Knowledge	Proficient	Advanced
A	Whole State	23408	47.80	29.90	22.30	33.70	14.10
	Female	11402	46.60	29.30	24.20	33.70	12.90
	Male	11978	49.10	30.40	20.60	33.80	15.30
	Native American	3816	44.30	30.70	25.10	32.90	11.40
	African American	2283	27.10	51.00	21.90	22.50	4.60
	Asian	520	60.00	20.60	19.40	33.50	26.50
	Hispanic	2893	37.20	38.40	24.40	29.20	8.00
	White	12562	54.70	24.10	21.20	37.10	17.60
	Other	1278	46.60	31.00	22.40	33.40	13.20
	Pacific Islander	56	35.70	39.30	25.00	19.60	16.10
	IEP	4188	13.60	69.90	16.50	11.70	1.90
	Low SES	11824	36.20	39.50	24.30	28.10	8.10
	ELL	797	10.60	70.80	18.70	8.70	1.90
	Section 504	215	52.50	23.30	24.20	37.20	15.30
	Accommodated	4725	15.00	68.00	17.00	12.50	2.50
B	Whole State	19383	51.50	25.10	23.30	35.00	16.50
	Female	9568	47.70	26.50	25.70	34.00	13.70
	Male	9814	55.20	23.70	21.00	35.90	19.30
	Native American	3062	46.50	27.30	26.20	35.00	11.50
	African American	1907	27.90	46.10	26.00	22.80	5.10
	Asian	466	68.70	14.40	17.00	37.60	31.10
	Hispanic	2417	37.60	36.80	25.60	28.70	8.90
	White	10439	59.90	18.40	21.80	38.70	21.20
	Other	1041	51.10	25.50	23.40	34.20	16.90
	Pacific Islander	51	52.90	25.50	21.60	33.30	19.60
	IEP	1646	18.90	62.00	19.20	15.10	3.80
	Low SES	9404	39.70	34.80	25.50	30.10	9.60
	ELL	447	12.30	68.90	18.80	10.10	2.20
	Section 504	188	56.30	22.30	21.30	35.60	20.70
	Accommodated	1995	21.70	59.30	18.90	16.50	5.20

Table 52. Spring 2014, State and Subgroup Proficiency Level Impact Data, English II

Form	Subgroup	N Count	Pass	Unsatisfactory	Limited Knowledge	Proficient	Advanced
AA	Whole State	11135	79.30	5.50	15.20	62.90	16.40
	Female	5556	84.00	3.20	12.80	63.80	20.20
	Male	5576	74.60	7.80	17.50	61.90	12.70
	Native American	1904	78.20	5.90	15.90	66.20	12.00
	African American	1029	65.90	10.90	23.20	59.80	6.10
	Asian	247	87.00	4.90	8.10	62.30	24.70
	Hispanic	1360	71.70	6.40	21.90	62.40	9.30
	White	5984	83.50	4.10	12.40	62.40	21.10
	Other	585	78.20	7.00	14.90	63.80	14.40
	Pacific Islander	26	73.00	15.40	11.50	61.50	11.50
	IEP	1799	36.60	25.30	38.20	34.50	2.10
	Low SES	5588	71.20	7.90	20.90	62.20	9.00
	ELL	308	32.50	25.30	42.20	31.20	1.30
	Section 504	108	78.70	4.60	16.70	60.20	18.50
	Accommodated	2021	38.40	24.10	37.50	35.50	2.90
AB	Whole State	10905	78.90	5.60	15.60	59.90	19.00
	Female	5168	85.00	3.00	12.10	61.30	23.70
	Male	5729	73.30	8.00	18.60	58.60	14.70
	Native American	1828	78.00	5.00	17.00	61.40	16.60
	African American	1138	68.70	9.80	21.40	59.10	9.60
	Asian	239	88.70	2.50	8.80	54.80	33.90
	Hispanic	1355	71.40	6.90	21.70	60.60	10.80
	White	5782	82.80	4.70	12.60	59.80	23.00
	Other	534	76.70	6.20	17.00	58.20	18.50
	Pacific Islander	29	55.20	17.20	27.60	48.30	6.90
	IEP	1755	34.90	26.60	38.60	32.80	2.10
	Low SES	5427	70.50	7.90	21.60	58.70	11.80
	ELL	310	34.50	19.40	46.10	33.50	1.00
	Section 504	110	84.60	1.80	13.60	68.20	16.40
	Accommodated	1969	37.50	24.70	37.80	34.60	2.90

Table 52. Spring 2014, State and Subgroup Proficiency Level Impact Data, English II *(continued)*

Form	Subgroup	N Count	Pass	Unsatisfactory	Limited Knowledge	Proficient	Advanced
BA	Whole State	9668	84.90	3.50	11.60	63.10	21.80
	Female	4800	88.70	1.70	9.60	63.20	25.50
	Male	4868	81.20	5.20	13.60	63.00	18.20
	Native American	1538	83.50	3.70	12.80	65.80	17.70
	African American	965	73.10	7.70	19.30	62.50	10.60
	Asian	247	88.30	3.20	8.50	49.00	39.30
	Hispanic	1181	78.40	4.70	16.90	66.00	12.40
	White	5229	88.90	2.30	8.80	62.40	26.50
	Other	482	85.30	4.10	10.60	64.10	21.20
	Pacific Islander	26	69.20	7.70	23.10	53.80	15.40
	IEP	986	43.20	21.90	34.90	40.70	2.50
	Low SES	4613	78.40	5.40	16.20	64.90	13.50
	ELL	187	37.40	20.90	41.70	35.30	2.10
	Section 504	88	87.50	.	12.50	64.80	22.70
	Accommodated	1141	45.50	20.80	33.70	41.60	3.90
BB	Whole State	9676	84.60	3.60	11.90	64.20	20.40
	Female	4779	88.10	2.30	9.60	64.90	23.20
	Male	4897	81.10	4.90	14.10	63.50	17.60
	Native American	1559	84.20	3.90	11.90	68.40	15.80
	African American	927	70.20	7.80	22.10	61.10	9.10
	Asian	231	91.30	2.20	6.50	61.90	29.40
	Hispanic	1171	77.60	6.00	16.40	67.00	10.60
	White	5288	88.40	2.30	9.20	62.80	25.60
	Other	476	84.90	3.60	11.60	66.40	18.50
	Pacific Islander	24	75.00	.	25.00	62.50	12.50
	IEP	1019	42.10	22.30	35.60	39.10	3.00
	Low SES	4616	77.10	5.70	17.10	65.70	11.40
	ELL	184	34.80	25.50	39.70	33.70	1.10
	Section 504	82	85.40	3.70	11.00	63.40	22.00
	Accommodated	1177	44.40	21.30	34.30	40.20	4.20

Table 53. Spring 2014, State and Subgroup Proficiency Level Impact Data, English III

Form	Subgroup	N Count	Pass	Limited Unsatisfactory	Limited Knowledge	Proficient	Advanced
AA	Whole State	8827	86.30	8.00	5.70	61.60	24.70
	Female	4330	90.10	5.20	4.60	61.40	28.70
	Male	4484	82.70	10.40	6.80	61.90	20.80
	Native American	1587	83.50	9.80	6.60	62.40	21.10
	African American	814	78.40	13.10	8.50	66.50	11.90
	Asian	171	87.70	7.60	4.70	59.60	28.10
	Hispanic	1059	83.60	8.40	8.00	66.10	17.50
	White	4706	89.20	6.30	4.60	59.70	29.50
	Other	462	87.20	7.80	5.00	61.00	26.20
	Pacific Islander	28	71.40	21.40	7.10	50.00	21.40
	IEP	1470	48.60	34.80	16.50	45.30	3.30
	Low SES	4259	81.10	11.60	7.30	63.80	17.30
	ELL	223	46.20	31.80	22.00	42.60	3.60
	Section 504	73	91.80	1.40	6.80	68.50	23.30
	Accommodated	1620	50.50	33.10	16.40	46.30	4.20
AB	Whole State	8458	85.80	7.60	6.60	59.60	26.20
	Female	4124	89.70	5.30	5.10	59.30	30.40
	Male	4324	82.30	9.60	8.00	60.10	22.20
	Native American	1487	84.00	8.70	7.40	62.70	21.30
	African American	832	79.90	11.80	8.30	65.50	14.40
	Asian	164	84.70	4.90	10.40	56.70	28.00
	Hispanic	1051	82.50	8.80	8.70	63.50	19.00
	White	4495	88.80	6.00	5.20	57.20	31.60
	Other	404	82.20	9.40	8.40	55.00	27.20
	Pacific Islander	25	76.00	12.00	12.00	56.00	20.00
	IEP	1423	48.10	32.50	19.40	44.00	4.10
	Low SES	4098	81.10	10.60	8.20	61.50	19.60
	ELL	204	47.50	30.90	21.60	44.60	2.90
	Section 504	66	86.40	4.50	9.10	69.70	16.70
	Accommodated	1553	50.00	31.10	18.90	45.50	4.50

Table 53. Spring 2014, State and Subgroup Proficiency Level Impact Data, English III *(continued)*

Form	Subgroup	N Count	Pass	Unsatisfactory	Limited Knowledge	Proficient	Advanced
BA	Whole State	7359	89.30	5.90	4.80	65.00	24.30
	Female	3635	92.30	4.00	3.70	64.30	28.00
	Male	3724	86.50	7.70	5.80	65.70	20.80
	Native American	1202	88.90	6.10	5.10	67.50	21.40
	African American	714	80.80	12.50	6.70	70.70	10.10
	Asian	147	84.30	10.20	5.40	61.20	23.10
	Hispanic	929	86.70	6.80	6.60	71.60	15.10
	White	3951	91.80	4.30	3.90	61.70	30.10
	Other	390	90.80	4.60	4.60	66.40	24.40
	Pacific Islander	26	76.90	15.40	7.70	65.40	11.50
	IEP	826	55.00	29.80	15.30	50.60	4.40
	Low SES	3445	84.80	9.00	6.20	68.30	16.50
	ELL	172	46.50	36.00	17.40	43.00	3.50
	Section 504	70	87.10	5.70	7.10	70.00	17.10
	Accommodated	963	56.60	28.80	14.60	51.30	5.30
BB	Whole State	7496	90.00	5.10	4.80	63.00	27.00
	Female	3800	92.00	3.50	4.60	61.00	31.00
	Male	3696	88.00	6.90	5.10	65.00	23.00
	Native American	1246	89.50	5.10	5.50	64.70	24.80
	African American	706	81.10	10.50	8.40	67.80	13.30
	Asian	164	90.90	3.00	6.10	61.00	29.90
	Hispanic	957	85.90	7.80	6.30	69.80	16.10
	White	4028	92.70	3.70	3.60	60.10	32.60
	Other	379	90.20	5.00	4.70	62.50	27.70
	Pacific Islander	16	81.30	6.30	12.50	62.50	18.80
	IEP	810	55.10	29.00	15.90	50.50	4.60
	Low SES	3500	85.50	7.90	6.50	66.60	18.90
	ELL	169	59.80	27.80	12.40	56.80	3.00
	Section 504	49	89.80	6.10	4.10	73.50	16.30
	Accommodated	931	57.00	28.10	14.80	52.00	5.00

Table 54. Spring 2014, State and Subgroup Proficiency Level Impact Data, Geometry

Form	Subgroup	N Count	Pass	Limited Unsatisfactory	Limited Knowledge	Proficient	Advanced
A	Whole State	23452	79.80	6.70	13.50	43.70	36.10
	Female	11649	80.90	5.60	13.60	45.10	35.80
	Male	11785	78.80	7.70	13.40	42.30	36.50
	Native American	3814	78.00	6.70	15.30	47.60	30.40
	African American	2320	64.60	14.70	20.80	47.20	17.40
	Asian	542	92.60	2.60	4.80	29.30	63.30
	Hispanic	2878	73.80	8.40	17.80	45.90	27.90
	White	12561	84.10	5.00	11.00	42.30	41.80
	Other	1272	79.70	6.90	13.40	40.70	39.00
	Pacific Islander	65	67.70	6.20	26.20	36.90	30.80
	IEP	3345	37.60	29.70	32.70	30.30	7.30
	Low SES	11287	72.00	10.00	18.00	46.90	25.10
	ELL	642	47.50	24.00	28.50	35.00	12.50
	Section 504	204	82.80	5.40	11.80	52.90	29.90
	Accommodated	3812	41.00	27.50	31.50	32.10	8.90
B	Whole State	15243	82.00	5.20	12.80	44.60	37.40
	Female	7676	82.50	4.70	12.70	45.50	37.00
	Male	7567	81.40	5.70	12.90	43.60	37.80
	Native American	2427	80.70	5.60	13.70	47.60	33.10
	African American	1534	65.00	13.50	21.40	46.30	18.70
	Asian	347	93.40	1.70	4.90	26.80	66.60
	Hispanic	1923	77.20	6.40	16.30	50.50	26.70
	White	8116	86.10	3.40	10.50	42.90	43.20
	Other	855	83.20	4.90	11.90	42.70	40.50
	Pacific Islander	41	65.90	12.20	22.00	41.50	24.40
	IEP	1270	44.90	25.70	29.40	34.30	10.60
	Low SES	7279	75.50	7.80	16.70	48.60	26.90
	ELL	354	59.30	16.40	24.30	42.10	17.20
	Section 504	136	80.90	3.70	15.40	41.20	39.70
	Accommodated	1524	49.70	22.90	27.40	36.00	13.70

Table 55. Spring 2014, State and Subgroup Proficiency Level Impact Data, U.S. History

Form	Subgroup	N Count	Pass	Unsatisfactory	Limited Knowledge	Proficient	Advanced
A	Whole State	20598	77.10	11.30	11.70	36.00	41.10
	Female	10140	76.00	10.70	13.30	39.40	36.60
	Male	10441	78.10	11.80	10.10	32.70	45.40
	Native American	3336	74.00	12.30	13.70	38.40	35.60
	African American	1973	62.30	20.90	16.80	39.10	23.20
	Asian	483	86.80	6.20	7.00	29.20	57.60
	Hispanic	2474	68.70	14.80	16.50	39.40	29.30
	White	11222	82.30	8.50	9.20	34.50	47.80
	Other	1044	74.30	12.50	13.10	33.30	41.00
	Pacific Islander	66	59.10	28.80	12.10	28.80	30.30
	IEP	3459	41.50	38.20	20.20	28.60	12.90
	Low SES	9592	68.10	16.30	15.60	38.60	29.50
	ELL	529	36.30	41.00	22.70	27.80	8.50
	Section 504	182	78.60	7.10	14.30	34.60	44.00
	Accommodated	3851	43.00	37.00	20.00	29.00	14.00
B	Whole State	16830	82.30	7.20	10.60	38.10	44.20
	Female	8399	79.40	8.00	12.60	41.40	38.00
	Male	8430	85.20	6.30	8.50	34.80	50.40
	Native American	2645	80.50	7.40	12.10	40.80	39.70
	African American	1555	67.90	15.90	16.20	42.40	25.50
	Asian	412	85.20	7.00	7.80	29.60	55.60
	Hispanic	2105	74.70	10.70	14.50	41.40	33.30
	White	9148	86.90	4.90	8.20	36.20	50.70
	Other	926	81.20	6.40	12.40	37.60	43.60
	Pacific Islander	39	74.40	7.70	17.90	35.90	38.50
	IEP	1378	51.20	28.80	20.00	32.70	18.50
	Low SES	7436	74.20	11.30	14.60	41.60	32.60
	ELL	329	39.80	37.40	22.80	30.40	9.40
	Section 504	147	87.80	6.10	6.10	42.90	44.90
	Accommodated	1669	53.20	27.40	19.40	33.50	19.70

Table 56. Spring 2014, *P*-values and Item-Test Correlations Statistics for Operational Test Forms

Content	Form	Item Type	*P*-Values			Item-Test Correlation		
			Low	Mean	High	Low	Mean	High
Algebra I	A	MC	0.19	0.62	0.87	0.27	0.44	0.59
	B	MC	0.40	0.65	0.88	0.25	0.43	0.60
Algebra II	A	MC	0.36	0.61	0.97	0.20	0.39	0.52
	B	MC	0.32	0.62	0.98	0.18	0.38	0.53
Biology I	A	MC	0.36	0.65	0.91	0.19	0.41	0.56
	B	MC	0.31	0.68	0.95	0.17	0.39	0.56
English II	AA	CR	0.55	0.55	0.55	0.63	0.63	0.63
		MC	0.43	0.69	0.93	0.17	0.36	0.49
	AB	CR	0.52	0.52	0.52	0.61	0.61	0.61
		MC	0.43	0.69	0.92	0.18	0.37	0.50
	BA	CR	0.56	0.56	0.56	0.60	0.60	0.60
		MC	0.44	0.72	0.96	0.18	0.36	0.54
	BB	CR	0.53	0.53	0.53	0.60	0.60	0.60
		MC	0.44	0.72	0.96	0.17	0.36	0.56
English III	AA	CR	0.57	0.57	0.57	0.65	0.65	0.65
		MC	0.27	0.65	0.95	0.12	0.34	0.52
	AB	CR	0.61	0.61	0.61	0.64	0.64	0.64
		MC	0.29	0.65	0.95	0.13	0.34	0.51
	BA	CR	0.58	0.58	0.58	0.63	0.63	0.63
		MC	0.27	0.66	0.95	0.11	0.33	0.48
	BB	CR	0.62	0.62	0.62	0.63	0.63	0.63
		MC	0.27	0.66	0.95	0.12	0.32	0.48
Geometry	A	MC	0.29	0.67	0.90	0.18	0.43	0.57
	B	MC	0.24	0.69	0.95	0.21	0.41	0.58
U.S. History	A	MC	0.42	0.69	0.96	0.25	0.41	0.56
	B	MC	0.38	0.70	0.93	0.21	0.38	0.53

Table 57. Spring 2013 and Spring 2014 Test Reliability Data

Content	Form	Coefficient Alpha	
		Spring 2013	Spring 2014
Algebra I	A	0.91	0.92
	B	0.91	0.92
Algebra II	A	0.90	0.89
	B	0.90	0.89
Biology I	A	0.90	0.92
	B	0.88	0.91
English II	AA	0.87	0.89
	AB	0.87	0.89
	BA	0.86	0.88
	BB	0.87	0.89
English III	AA	0.88	0.87
	AB	0.88	0.87
	BA	0.88	0.86
	BB	0.88	0.86
Geometry	A	0.93	0.92
	B	0.92	0.91
U.S. History	A	0.91	0.92
	B	0.89	0.90

Table 58. Algebra I, Raw Score to Scale Score Conversions and SEMs

Raw	Algebra I Form A		Algebra I Form B		Raw	Algebra I Form A		Algebra I Form B	
Score	Scale Score	SEM	Scale Score	SEM	Score	Scale Score	SEM	Scale Score	SEM
0	490	176	490	176	28	707	13	707	13
1	490	176	490	176	29	711	13	711	13
2	490	176	490	176	30	715	13	715	13
3	490	176	490	176	31	718	12	719	13
4	490	176	490	176	32	722	12	722	12
5	490	176	490	176	33	726	12	726	12
6	490	176	490	176	34	729	12	730	12
7	490	176	490	176	35	733	12	733	12
8	490	176	490	176	36	736	12	737	12
9	490	176	490	176	37	740	12	740	12
10	490	176	490	176	38	744	12	744	12
11	490	176	490	176	39	748	12	748	12
12	564	102	565	101	40	751	12	752	12
13	597	69	596	69	41	755	12	756	12
14	616	50	616	50	42	760	12	760	12
15	630	38	630	39	**43**	**764**	**13**	**764**	**12**
16	641	32	640	32	44	768	13	768	13
17	650	27	650	28	45	773	13	773	13
18	657	24	657	24	46	779	14	778	13
19	**664**	**22**	**664**	**22**	47	784	14	783	14
20	670	20	670	20	48	790	15	789	15
21	676	18	676	19	49	797	16	796	16
22	681	17	681	17	50	805	17	804	17
23	686	16	686	16	51	815	19	813	20
24	691	16	691	16	52	827	22	825	23
25	695	15	695	15	53	843	28	842	29
26	699	14	699	14	54	872	42	872	42
27	**703**	**14**	**703**	**14**	55	999	169	999	169

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 59. Algebra II, Raw Score to Scale Score Conversions and SEMs

Raw	Algebra II Form A		Algebra II Form B		Raw	Algebra II Form A		Algebra II Form B	
Score	Scale Score	SEM	Scale Score	SEM	Score	Scale Score	SEM	Scale Score	SEM
0	440	217	440	219	28	709	21	708	21
1	440	217	440	219	29	715	20	714	20
2	440	217	440	219	30	721	19	720	20
3	440	217	440	219	31	726	19	726	19
4	440	217	440	219	32	732	18	731	19
5	440	217	440	219	33	737	18	737	18
6	440	217	440	219	34	743	18	742	18
7	440	217	440	219	35	748	17	747	18
8	440	217	440	219	36	754	17	753	18
9	440	217	440	219	37	759	17	758	18
10	440	217	440	219	38	764	17	764	18
11	440	217	440	219	39	770	17	769	18
12	440	217	440	219	40	775	17	775	18
13	460	198	461	198	41	781	17	781	18
14	530	128	527	132	**42**	**787**	**17**	**787**	**18**
15	566	92	564	95	43	793	18	793	18
16	590	67	589	70	44	799	18	800	19
17	609	53	608	56	45	806	19	807	19
18	623	45	624	47	46	813	19	814	20
19	636	39	636	40	47	821	20	822	21
20	647	35	648	36	48	830	22	831	23
21	**657**	**31**	**657**	**32**	49	840	23	842	24
22	666	29	666	30	50	852	26	854	27
23	674	27	675	27	51	867	29	869	31
24	682	25	682	26	52	886	35	889	37
25	689	24	689	24	53	913	46	918	48
26	696	23	696	23	54	964	70	969	72
27	**702**	**22**	**702**	**22**	55	999	92	999	90

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 60. Biology I, Raw Score to Scale Score Conversions and SEMs

Raw Score	Biology I Form A		Biology I Form B		Raw Score	Biology I Form A		Biology I Form B	
	Scale Score	SEM	Scale Score	SEM		Scale Score	SEM	Scale Score	SEM
0	440	124	440	126	30	630	26	627	25
1	440	124	440	126	31	637	25	634	24
2	440	124	440	126	32	644	24	640	23
3	440	124	440	126	**33**	**651**	**23**	647	23
4	440	124	440	126	**34**	658	23	**653**	**22**
5	440	124	440	126	35	664	22	659	22
6	440	124	440	126	36	670	22	665	21
7	440	124	440	126	37	676	21	671	21
8	440	124	440	126	38	683	21	677	21
9	440	124	440	126	39	689	21	683	20
10	440	124	440	126	40	695	20	689	20
11	440	124	440	126	**41**	**701**	**20**	695	20
12	440	124	440	126	**42**	707	20	**702**	**20**
13	440	124	440	126	43	713	20	708	20
14	440	124	440	126	44	720	20	714	20
15	440	124	440	126	45	726	20	721	21
16	440	124	440	126	46	733	20	728	21
17	468	95	457	109	47	739	21	735	21
18	493	75	486	84	48	747	21	742	22
19	513	63	508	69	49	754	21	750	23
20	530	54	526	58	50	762	22	758	23
21	544	48	541	50	51	771	23	767	24
22	557	43	555	45	**52**	**780**	**24**	**777**	**26**
23	569	39	567	40	53	790	26	789	27
24	580	36	577	36	54	802	28	801	30
25	589	34	587	34	55	816	30	816	33
26	598	32	596	31	56	832	34	834	37
27	607	30	604	29	57	853	40	857	43
28	615	28	612	28	58	884	51	890	56
29	623	27	620	26	59	939	81	953	94
					60	999	130	999	134

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 61. English II, Raw Score to Scale Score Conversions and SEMs

Raw	English II Form AA		English II Form AB		English II Form BA		English II Form BB	
Score	Scale Score	SEM	Scale Score	SEM	Scale Score	SEM	Scale Score	SEM
0	440	156	440	155	440	147	440	146
1	440	156	440	155	440	147	440	146
2	440	156	440	155	440	147	440	146
3	440	156	440	155	440	147	440	146
4	440	156	440	155	440	147	440	146
5	440	156	440	155	440	147	440	146
6	440	156	440	155	440	147	440	146
7	440	156	440	155	440	147	440	146
8	440	156	440	155	440	147	440	146
9	440	156	440	155	440	147	440	146
10	440	156	440	155	440	147	440	146
11	440	156	440	155	440	147	440	146
12	440	156	440	155	440	147	440	146
13	440	156	440	155	440	147	440	146
14	440	156	440	155	440	147	440	146
15	440	156	440	155	440	147	440	146
16	440	156	440	155	474	114	468	118
17	463	133	456	138	503	84	498	88
18	497	99	491	103	525	68	521	71
19	522	80	518	83	543	58	540	60
20	543	67	539	70	558	50	556	52
21	560	58	558	60	572	45	570	47
22	575	51	573	53	584	41	582	42
23	588	46	587	48	594	38	594	39
24	600	42	600	43	605	36	604	36
25	**611**	**39**	**611**	**40**	**614**	**34**	**614**	**34**
26	622	36	622	37	623	32	623	32
27	631	34	631	35	631	30	631	31
28	640	32	640	33	639	29	639	29
29	648	31	649	31	647	28	647	28
30	656	29	657	29	654	27	655	27
31	664	28	665	28	661	26	662	26
32	671	27	672	27	668	25	669	25
33	678	26	679	26	675	24	675	24
34	685	25	686	25	681	24	682	24

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 61. English II, Raw Score to Scale Score Conversions and SEMs *(continued)*

Raw	English II Form AA		English II Form AB		English II Form BA		English II Form BB	
Score	Scale Score	SEM	Scale Score	SEM	Scale Score	SEM	Scale Score	SEM
35	691	24	692	24	687	23	688	23
36	698	24	699	24	694	23	695	23
37	**704**	**23**	**705**	**23**	**700**	**22**	**701**	**22**
38	710	23	712	23	706	22	707	22
39	716	23	718	22	712	22	713	22
40	723	22	724	22	718	22	719	21
41	729	22	730	22	724	21	725	21
42	735	22	736	22	730	21	731	21
43	741	22	742	22	736	21	737	21
44	747	22	748	22	742	21	743	21
45	753	22	755	22	748	21	749	21
46	759	22	761	22	754	21	756	21
47	766	22	767	22	760	21	762	21
48	772	22	774	22	767	22	768	22
49	779	22	780	22	774	22	775	22
50	786	22	787	22	781	22	782	22
51	793	23	795	23	788	23	790	23
52	800	23	802	23	795	23	797	23
53	808	24	810	24	803	24	805	24
54	816	25	**819**	**25**	812	25	814	25
55	**825**	**26**	828	26	**821**	**26**	**823**	**26**
56	835	27	838	27	831	27	833	27
57	845	28	849	29	841	28	844	29
58	857	30	861	31	853	30	857	31
59	870	32	875	33	866	32	871	33
60	885	35	891	37	881	35	887	36
61	903	39	911	41	899	38	906	40
62	925	45	934	46	920	43	930	45
63	953	53	964	53	948	51	959	51
64	993	67	999	63	986	64	997	62
65	999	70	999	63	999	69	999	63
66	999	70	999	63	999	69	999	63

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 62. English III, Raw Score to Scale Score Conversions and SEMs

Raw	English III Form AA		English III Form AB		English III Form BA		English III Form BB	
Score	Scale Score	SEM	Scale Score	SEM	Scale Score	SEM	Scale Score	SEM
0	440	185	440	175	440	187	440	175
1	440	185	440	175	440	187	440	175
2	440	185	440	175	440	187	440	175
3	440	185	440	175	440	187	440	175
4	440	185	440	175	440	187	440	175
5	440	185	440	175	440	187	440	175
6	440	185	440	175	440	187	440	175
7	440	185	440	175	440	187	440	175
8	440	185	440	175	440	187	440	175
9	440	185	440	175	440	187	440	175
10	440	185	440	175	440	187	440	175
11	440	185	440	175	440	187	440	175
12	440	185	440	175	440	187	440	175
13	440	185	440	175	440	187	440	175
14	440	185	440	175	440	187	440	175
15	440	185	440	175	505	122	497	119
16	487	139	480	135	538	88	529	87
17	525	101	516	99	561	67	551	67
18	550	76	540	75	578	55	568	57
19	569	61	559	62	592	47	583	50
20	584	52	575	54	604	42	595	45
21	597	46	588	49	615	38	607	41
22	609	42	600	44	624	35	617	37
23	619	38	612	41	633	32	627	34
24	628	35	622	38	641	30	636	32
25	637	33	631	35	649	28	644	30
26	645	31	640	33	656	27	651	28
27	653	29	648	31	662	26	659	27
28	660	27	656	29	669	25	665	25
29	667	26	663	27	**675**	**24**	**672**	**24**
30	**673**	**25**	**670**	**26**	681	23	678	23
31	679	24	676	25	686	22	683	22
32	685	23	682	24	692	21	689	22
33	691	22	688	23	697	21	694	21
34	696	22	694	22	**702**	**21**	**700**	**21**
35	**702**	**21**	699	21	707	20	705	20

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 62. English III, Raw Score to Scale Score Conversions and SEMs *(continued)*

Raw	English III Form AA		English III Form AB		English III Form BA		English III Form BB	
Score	Scale Score	SEM	Scale Score	SEM	Scale Score	SEM	Scale Score	SEM
36	707	21	**704**	**21**	712	20	710	20
37	712	20	710	20	718	20	715	20
38	717	20	715	20	722	19	720	19
39	722	20	720	20	727	19	725	19
40	727	20	725	20	732	19	730	19
41	732	19	730	19	737	19	735	19
42	738	19	735	19	742	19	740	19
43	743	19	740	19	747	19	745	19
44	748	19	745	19	752	19	750	19
45	753	19	750	19	757	19	755	19
46	758	19	756	19	762	18	760	18
47	763	19	761	19	767	18	765	18
48	769	19	766	19	772	18	770	19
49	774	20	772	20	777	19	775	19
50	780	20	777	20	783	19	780	19
51	785	20	783	20	788	19	786	19
52	791	21	789	20	794	19	791	19
53	797	21	795	21	799	19	797	19
54	**804**	**22**	**802**	**21**	**805**	**19**	**803**	**19**
55	811	22	808	22	811	20	809	20
56	818	23	815	23	817	20	815	20
57	825	24	823	23	824	20	822	20
58	833	24	831	24	831	21	828	21
59	842	25	839	25	838	21	835	21
60	851	26	848	26	845	22	843	22
61	861	27	857	27	853	23	851	22
62	871	28	868	28	862	24	859	23
63	882	29	878	29	871	25	868	24
64	894	30	890	30	881	26	878	26
65	906	32	902	31	892	28	888	27
66	920	34	916	33	905	31	901	30
67	936	36	931	36	919	34	915	33
68	954	40	949	40	937	38	931	37
69	977	46	972	46	958	44	952	43
70	999	54	999	55	988	55	981	54
71	999	54	999	55	999	59	999	62
72	999	54	999	55	999	59	999	62

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 63. Geometry, Raw Score to Scale Score Conversions and SEMs

Raw	Geometry Form A		Geometry Form B		Raw	Geometry Form A		Geometry Form B	
Score	Scale Score	SEM	Scale Score	SEM	Score	Scale Score	SEM	Scale Score	SEM
0	440	204	440	194	**28**	**703**	**20**	**703**	**20**
1	440	204	440	194	29	708	19	709	20
2	440	204	440	194	30	714	18	714	19
3	440	204	440	194	31	719	18	720	18
4	440	204	440	194	32	724	17	725	17
5	440	204	440	194	33	729	17	730	17
6	440	204	440	194	34	734	17	735	17
7	440	204	440	194	35	739	16	740	16
8	440	204	440	194	36	744	16	745	16
9	440	204	440	194	37	749	16	750	16
10	440	204	440	194	38	754	16	755	16
11	440	204	440	194	39	759	16	759	15
12	477	167	473	160	40	764	16	764	15
13	536	108	529	105	41	769	16	770	16
14	566	78	558	76	42	775	17	775	16
15	587	59	579	58	**43**	**780**	**17**	**780**	**16**
16	604	48	595	49	44	787	17	786	16
17	617	41	609	43	45	793	18	792	17
18	628	36	622	39	46	800	19	798	17
19	**639**	**33**	633	35	47	807	20	806	18
20	648	30	**643**	**33**	48	816	21	813	19
21	656	28	652	30	49	825	22	822	21
22	664	26	661	29	50	836	24	832	23
23	671	25	669	27	51	849	27	845	26
24	678	23	676	25	52	866	32	861	30
25	685	22	683	24	53	891	41	883	38
26	691	21	690	23	54	936	67	923	59
27	697	20	697	21	55	999	128	999	129

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 64. U.S. History, Raw Score to Scale Score Conversions and SEMs

Raw Score	U.S. History Form A		U.S. History Form B		Raw Score	U.S. History Form A		U.S. History Form B	
	Scale Score	SEM	Scale Score	SEM		Scale Score	SEM	Scale Score	SEM
0	440	170	440	166	31	663	17	662	18
1	440	170	440	166	32	668	17	667	17
2	440	170	440	166	**33**	**672**	**17**	**672**	**17**
3	440	170	440	166	34	677	16	676	17
4	440	170	440	166	35	681	16	681	16
5	440	170	440	166	36	686	16	686	16
6	440	170	440	166	37	690	15	690	16
7	440	170	440	166	38	694	15	694	16
8	440	170	440	166	39	699	15	699	16
9	440	170	440	166	40	703	15	703	15
10	440	170	440	166	41	707	15	708	15
11	440	170	440	166	42	712	15	712	15
12	440	170	440	166	43	716	15	717	15
13	440	170	440	166	44	720	15	722	16
14	463	147	477	129	45	725	15	727	16
15	510	99	514	92	**46**	**730**	**15**	**732**	**16**
16	537	73	538	68	47	735	15	737	16
17	555	56	556	53	48	740	15	742	17
18	570	46	570	44	49	745	16	748	17
19	582	39	582	38	50	751	16	754	18
20	592	35	592	34	51	757	17	761	19
21	601	31	601	31	52	763	18	769	20
22	610	28	609	28	53	771	19	777	21
23	617	26	616	26	54	779	20	787	23
24	624	24	623	24	55	789	22	798	25
25	631	23	630	23	56	801	25	811	29
26	**637**	**21**	**636**	**22**	57	817	30	829	33
27	642	20	642	21	58	839	39	854	42
28	648	19	647	20	59	881	60	899	64
29	653	19	652	19	60	999	173	999	151
30	658	18	657	18					

Note: SEM = Standard Error of Measurement; **BOLD** = Scale Score at or closest to cut scores.

Table 65. Spring 2014, Total Group Factor Analysis Results: Eigenvalues

Content	Form	KMO Statistic	Initial Eigenvalue		Ratio 1st / 2nd Eigenvalue
			Total	Variance	
Algebra I	A	0.97	13.84	0.88	10.48
	B	0.97	13.06	0.88	10.21
Algebra II	A	0.97	9.73	0.90	7.56
	B	0.96	9.03	0.90	9.04
Biology I	A	0.98	12.05	0.98	10.59
	B	0.98	10.98	1.00	13.28
English II	AA	0.97	8.51	1.00	14.93
	AB	0.97	9.22	0.99	15.09
	BA	0.96	8.29	0.94	10.94
	BB	0.97	9.20	0.95	10.96
English III	AA	0.96	8.78	0.95	12.64
	AB	0.96	8.73	0.95	11.31
	BA	0.96	7.91	0.95	9.68
	BB	0.96	7.74	0.95	10.71
Geometry	A	0.98	12.69	0.91	10.29
	B	0.97	11.59	0.91	9.19
U.S. History	A	0.98	12.07	0.99	13.03
	B	0.98	9.75	1.00	15.02

Table 66. Spring 2014, Subgroup Factor Analysis Results: Eigenvalues

Content	Form	Subgroup	KMO Statistic	Initial Eigenvalue		Ratio 1st / 2nd Eigenvalue
				Total	Variance	
Algebra I	A	Accommodated	0.96	9.89	0.87	8.64
		ELL	0.93	11.87	0.74	9.49
		IEP	0.95	8.91	0.86	8.13
	B	Accommodated	0.95	11.08	0.81	9.51
		ELL	0.88	11.16	0.60	7.20
		IEP	0.94	10.74	0.79	9.25
Algebra II	A	Accommodated	0.93	8.77	0.80	6.43
		ELL	0.87	14.69	0.54	5.53
		IEP	0.91	7.78	0.76	6.51
	B	Accommodated	0.91	9.72	0.68	7.96
		ELL	0.71	16.79	0.34	4.21
		IEP	0.89	8.92	0.64	7.56
Geometry	A	Accommodated	0.96	10.36	0.89	10.38
		ELL	0.92	12.43	0.68	9.38
		IEP	0.95	9.59	0.87	9.60
	B	Accommodated	0.95	11.72	0.80	8.37
		ELL	0.88	14.55	0.57	6.99
		IEP	0.94	10.83	0.76	7.89
Biology I	A	Accommodated	0.96	8.41	0.92	9.42
		ELL	0.86	7.41	0.63	7.36
		IEP	0.95	7.97	0.91	9.50
	B	Accommodated	0.96	11.25	0.87	11.52
		ELL	0.83	9.40	0.52	7.34
		IEP	0.95	10.47	0.83	10.39

Table 66. Spring 2014, Subgroup Factor Analysis Results: Eigenvalues *(continued)*

Content	Form	Subgroup	KMO Statistic	Initial Eigenvalue		Ratio 1st / 2nd Eigenvalue
				Total	Variance	
English II	AA	Accommodated	0.93	8.23	0.81	10.81
		ELL	0.68	8.99	0.32	4.39
		IEP	0.92	7.71	0.77	10.33
	AB	Accommodated	0.94	8.87	0.83	10.97
		ELL	0.70	8.67	0.35	4.98
		IEP	0.93	8.35	0.80	10.22
	BA	Accommodated	0.91	9.44	0.69	8.96
		ELL	0.59	13.11	0.25	3.96
		IEP	0.89	9.13	0.66	8.64
	BB	Accommodated	0.93	11.09	0.76	10.40
		ELL	0.61	13.94	0.28	4.55
		IEP	0.92	10.73	0.72	10.02
English III	AA	Accommodated	0.92	8.72	0.76	10.23
		ELL	0.65	10.53	0.29	4.18
		IEP	0.91	8.43	0.74	9.66
	AB	Accommodated	0.92	8.53	0.75	9.59
		ELL	0.63	10.62	0.27	4.03
		IEP	0.91	8.42	0.73	9.27
	BA	Accommodated	0.89	8.96	0.66	7.80
		ELL	0.65	15.64	0.29	4.52
		IEP	0.87	8.66	0.61	7.19
	BB	Accommodated	0.90	9.10	0.67	8.67
		ELL	0.58	13.02	0.24	3.69
		IEP	0.88	8.89	0.63	8.13
U.S. History	A	Accommodated	0.97	10.83	0.91	11.13
		ELL	0.87	10.40	0.57	8.08
		IEP	0.97	10.52	0.90	10.69
	B	Accommodated	0.96	11.70	0.85	12.73
		ELL	0.79	10.12	0.43	5.14
		IEP	0.95	11.71	0.82	12.44

Table 67. Spring 2014, Proficiency Level Cut Scores and Standard Error of Measurement (SEM)

Content	Form	Cut 1		Cut 2		Cut 3	
		Scale Score	SEM at Cut1	Scale Score	SEM at Cut2	Scale Score	SEM at Cut3
Algebra I	A	664	22	703	14	764	13
	B	664	22	703	14	764	12
Algebra II	A	657	31	702	22	787	17
	B	657	32	702	22	787	18
Biology I	A	651	23	701	20	780	24
	B	653	22	702	20	777	26
English II	AA	611	39	704	23	825	26
	AB	611	40	705	23	819	25
	BA	614	34	700	22	821	26
	BB	614	34	701	22	823	26
English III	AA	673	25	702	21	804	22
	AB	670	26	704	21	802	21
	BA	675	24	702	21	805	19
	BB	672	24	700	21	803	19
Geometry	A	639	33	703	20	780	17
	B	643	33	703	20	780	16
U.S. History	A	637	21	672	17	730	15
	B	636	22	672	17	732	16

Table 68. Spring 2014, Classification Consistency and Accuracy Statistics

Content	Form	Accuracy	Consistency	False Positive	False Negative	Kappa
Algebra I	A	0.79	0.71	0.10	0.11	0.60
	B	0.80	0.73	0.09	0.10	0.60
Algebra II	A	0.76	0.68	0.11	0.12	0.54
	B	0.76	0.68	0.11	0.12	0.54
Biology I	A	0.77	0.69	0.12	0.11	0.57
	B	0.75	0.67	0.13	0.12	0.55
English II	AA	0.81	0.73	0.09	0.10	0.58
	AB	0.81	0.73	0.09	0.10	0.58
	BA	0.82	0.75	0.09	0.09	0.59
	BB	0.82	0.75	0.09	0.09	0.59
English III	AA	0.78	0.71	0.10	0.11	0.53
	AB	0.79	0.71	0.10	0.11	0.53
	BA	0.81	0.74	0.09	0.10	0.53
	BB	0.81	0.74	0.09	0.10	0.54
Geometry	A	0.81	0.73	0.09	0.10	0.61
	B	0.81	0.74	0.09	0.10	0.61
U.S. History	A	0.78	0.70	0.10	0.12	0.58
	B	0.78	0.70	0.10	0.12	0.55

Table 69. Accuracy and Consistency Estimates by Cut Score

Content	Form	Accuracy			Consistency		
		U/L+P+A	U+L/P+A	U+L+P/A	U/L+P+A	U+L/P+A	U+L+P/A
Algebra I	A	0.95	0.92	0.92	0.93	0.89	0.89
	B	0.96	0.93	0.92	0.94	0.89	0.88
Algebra II	A	0.94	0.91	0.91	0.92	0.87	0.88
	B	0.95	0.91	0.91	0.92	0.87	0.87
Biology I	A	0.91	0.91	0.94	0.88	0.87	0.92
	B	0.91	0.90	0.93	0.88	0.86	0.91
English II	AA	0.97	0.91	0.92	0.96	0.88	0.89
	AB	0.97	0.91	0.92	0.96	0.88	0.89
	BA	0.99	0.92	0.91	0.98	0.89	0.88
	BB	0.99	0.92	0.91	0.98	0.89	0.88
English III	AA	0.95	0.92	0.90	0.93	0.89	0.86
	AB	0.95	0.92	0.90	0.93	0.89	0.86
	BA	0.97	0.94	0.90	0.95	0.91	0.86
	BB	0.97	0.94	0.90	0.95	0.91	0.86
Geometry	A	0.97	0.93	0.91	0.95	0.90	0.88
	B	0.98	0.93	0.91	0.97	0.90	0.87
U.S. History	A	0.95	0.92	0.91	0.92	0.89	0.88
	B	0.96	0.92	0.90	0.94	0.89	0.86

Note: U=Unsatisfactory, L=Limited Knowledge, P=Proficient, and A=Advanced.

Table 70. Accuracy and Consistency Estimates by Cut Score: False Positive and False Negative Rates

Content	Form	U/L+P+A		U+L/P+A		U+L+P/A	
		False Positive	False Negative	False Positive	False Negative	False Positive	False Negative
Algebra I	A	0.02	0.03	0.04	0.04	0.04	0.03
	B	0.01	0.02	0.03	0.04	0.05	0.04
Algebra II	A	0.02	0.04	0.04	0.05	0.05	0.04
	B	0.02	0.03	0.04	0.05	0.05	0.04
Biology I	A	0.04	0.05	0.05	0.04	0.04	0.02
	B	0.04	0.05	0.05	0.05	0.04	0.03
English II	AA	0.01	0.02	0.04	0.05	0.05	0.03
	AB	0.01	0.02	0.04	0.05	0.05	0.03
	BA	0.00	0.01	0.03	0.05	0.05	0.04
	BB	0.00	0.01	0.03	0.05	0.05	0.04
English III	AA	0.02	0.03	0.03	0.05	0.06	0.04
	AB	0.02	0.03	0.03	0.05	0.06	0.04
	BA	0.01	0.02	0.02	0.04	0.06	0.04
	BB	0.01	0.02	0.02	0.04	0.06	0.04
Geometry	A	0.01	0.02	0.03	0.04	0.05	0.04
	B	0.01	0.02	0.03	0.04	0.05	0.04
U.S. History	A	0.02	0.03	0.04	0.04	0.05	0.04
	B	0.01	0.03	0.03	0.05	0.05	0.05

Note: U=Unsatisfactory, L=Limited Knowledge, P=Proficient, and A=Advanced.

Figures

Figure 1. Spring 2014 Algebra I Form A operational scale score histogram

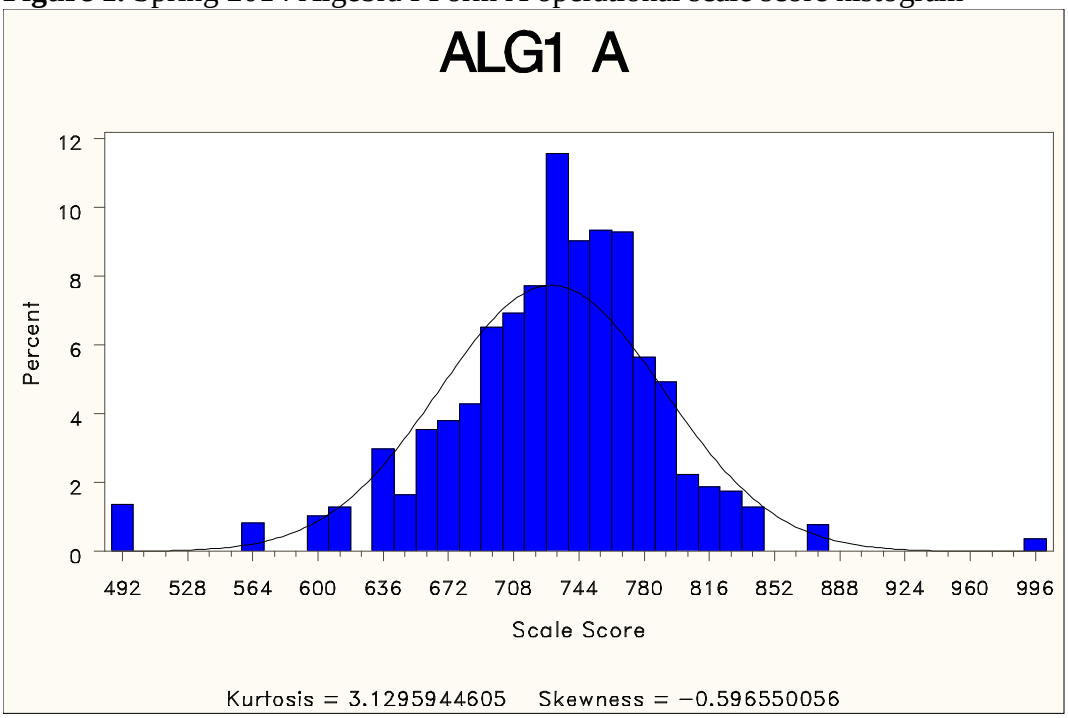


Figure 2. Spring 2014 Algebra I Form B operational scale score histogram

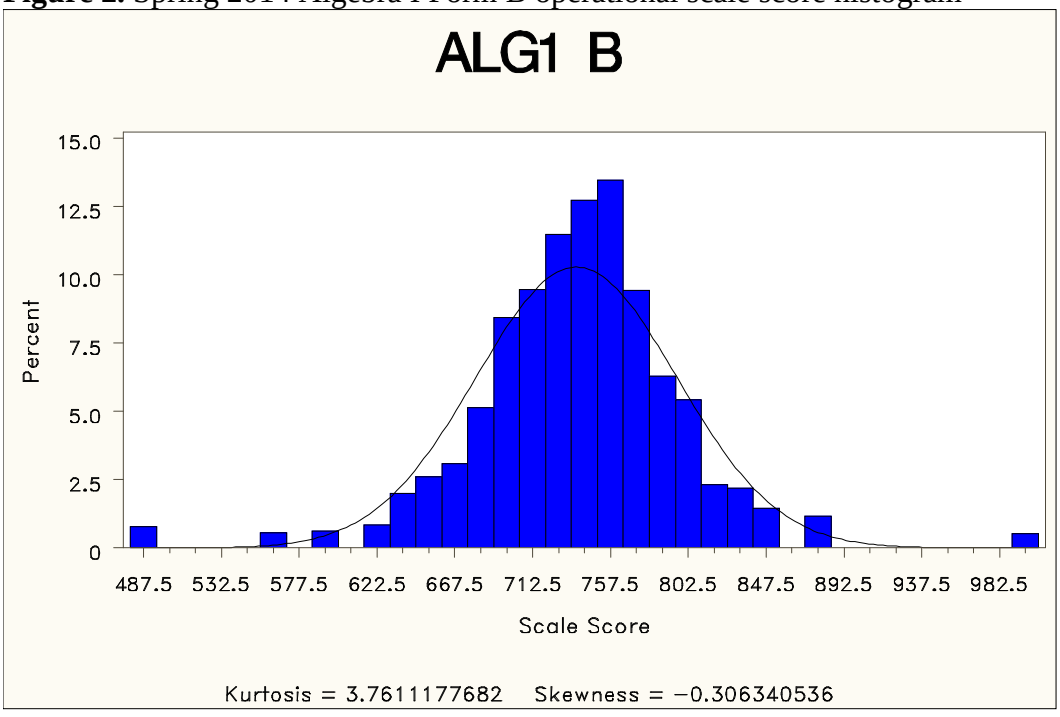


Figure 3. Spring 2014 Algebra II Form A operational scale score histogram

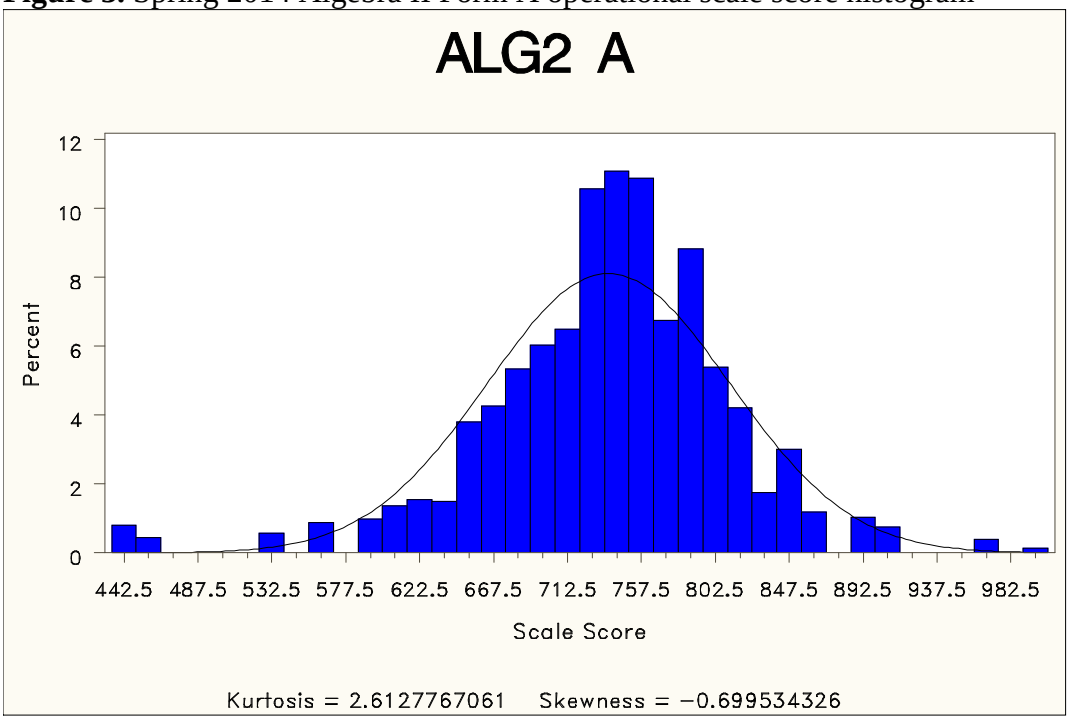


Figure 4. Spring 2014 Algebra II Form B operational scale score histogram

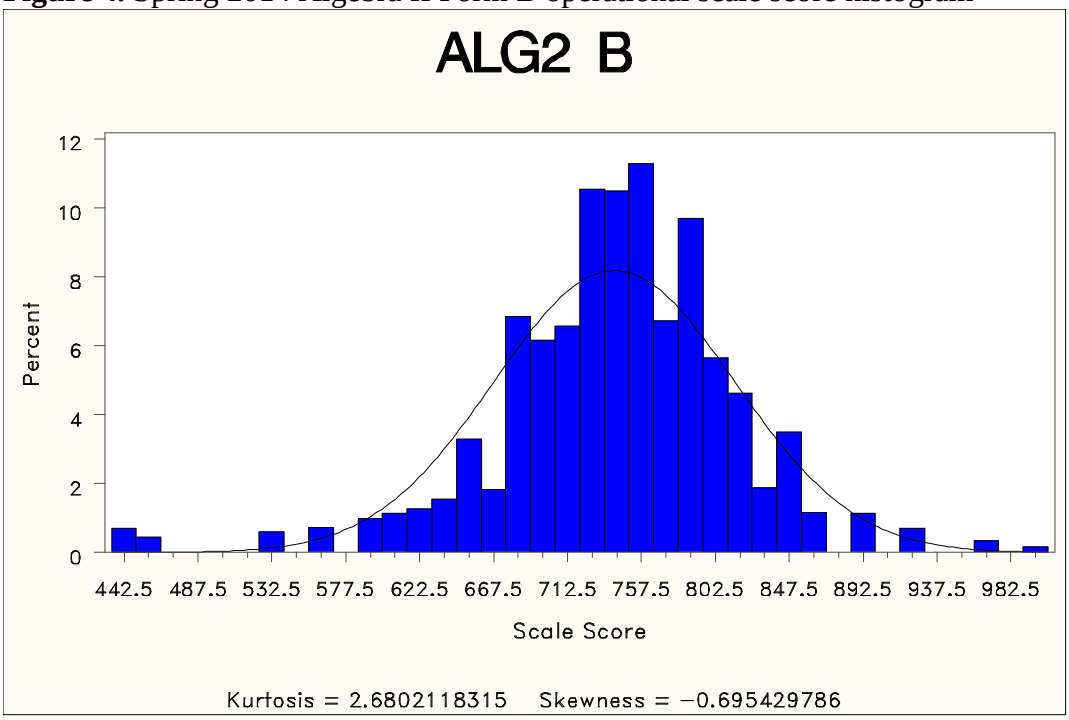


Figure 5. Spring 2014 Biology I Form A operational scale score histogram

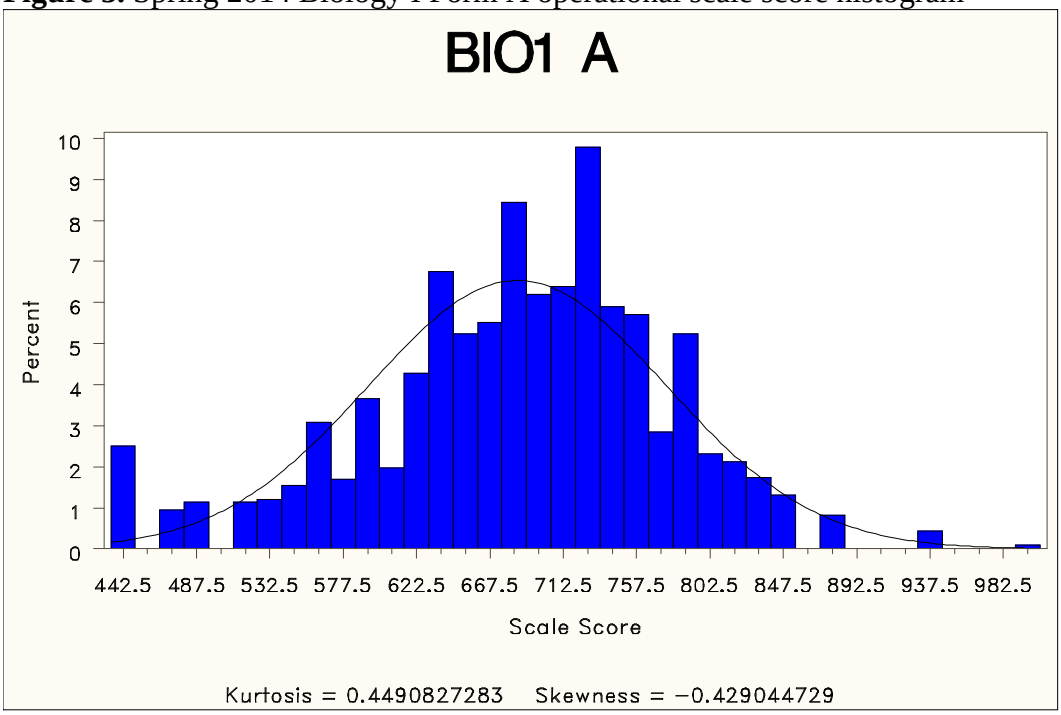


Figure 6. Spring 2014 Biology I Form B operational scale score histogram

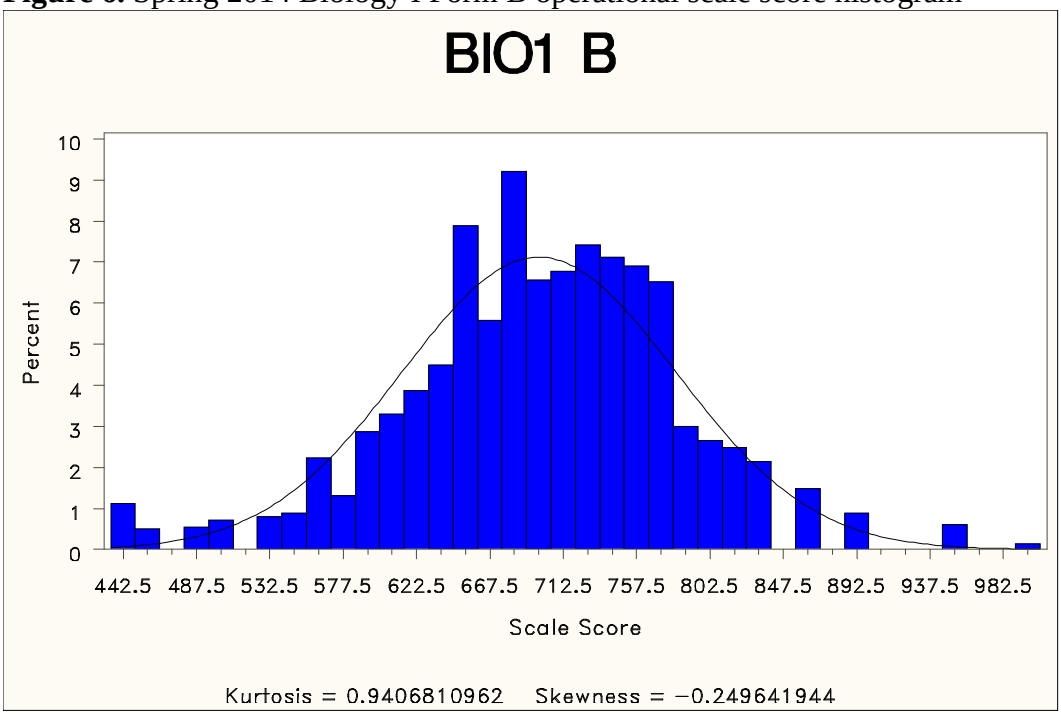


Figure 7. Spring 2014 English II Form AA operational scale score histogram

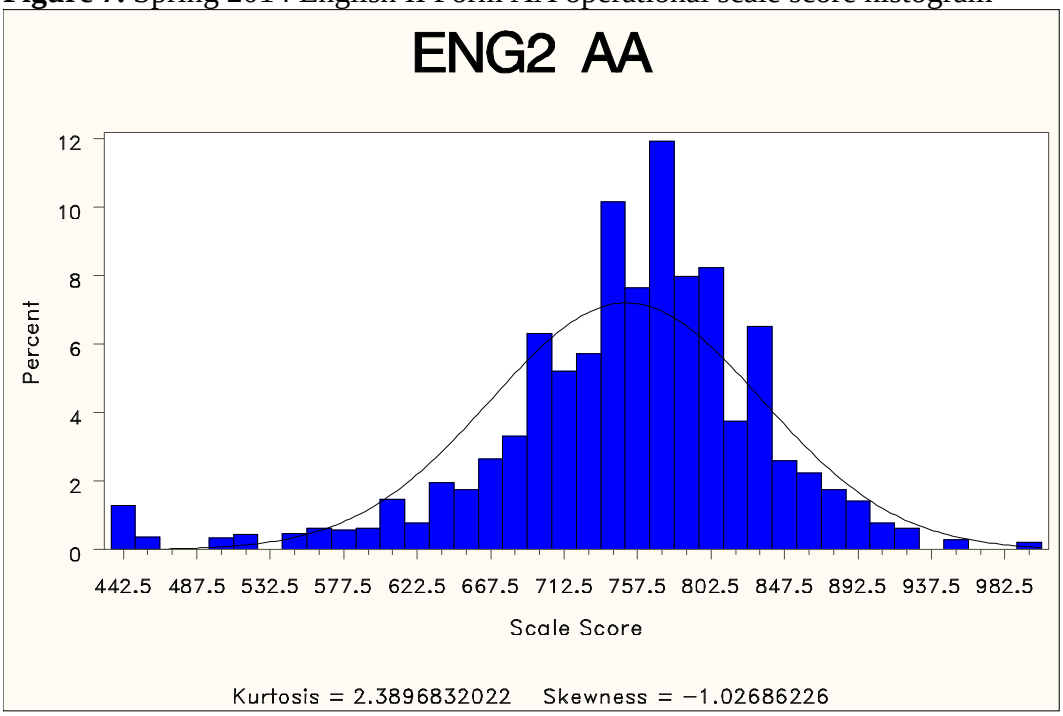


Figure 8. Spring 2014 English II Form AB operational scale score histogram

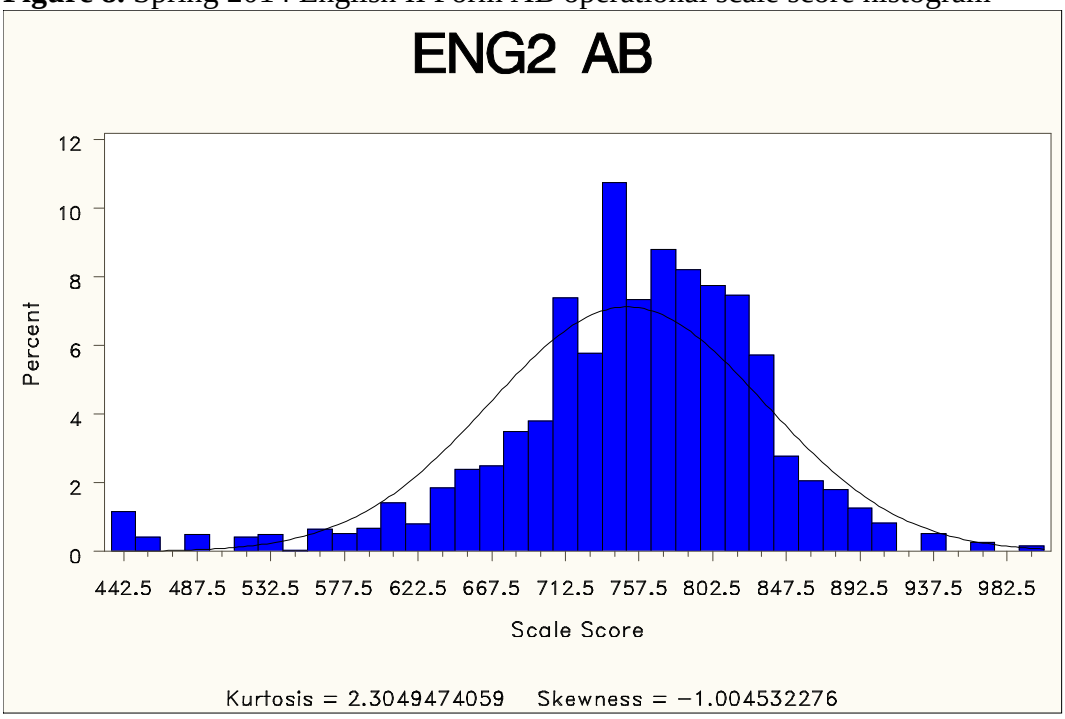


Figure 9. Spring 2014 English II Form BA operational scale score histogram

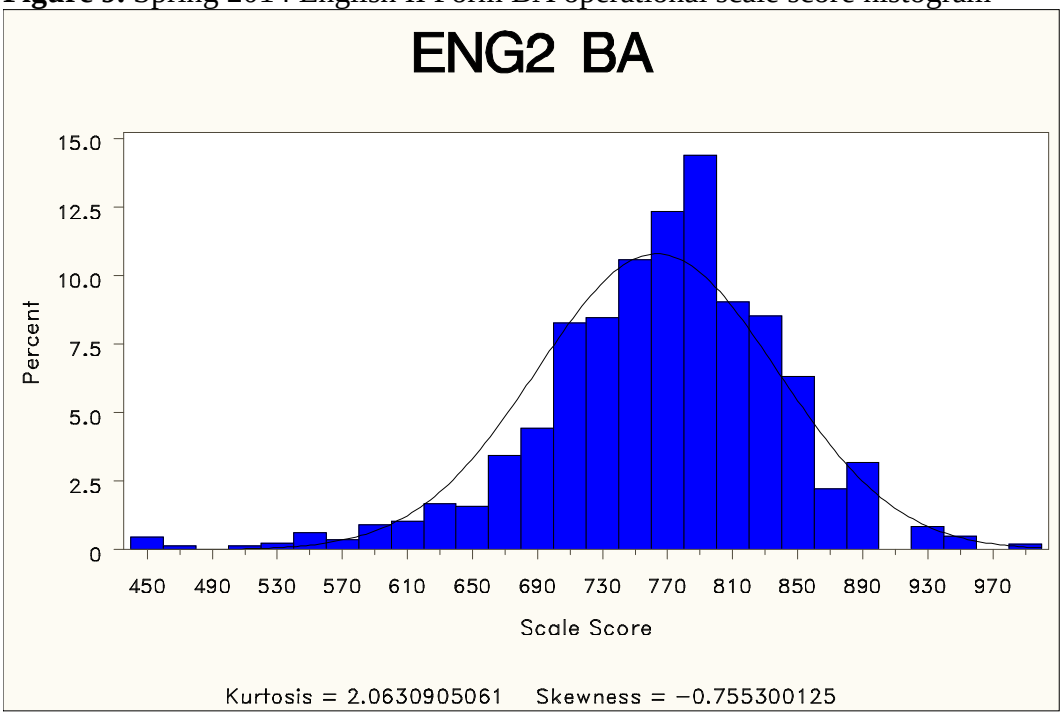


Figure 10. Spring 2014 English II Form BB operational scale score histogram

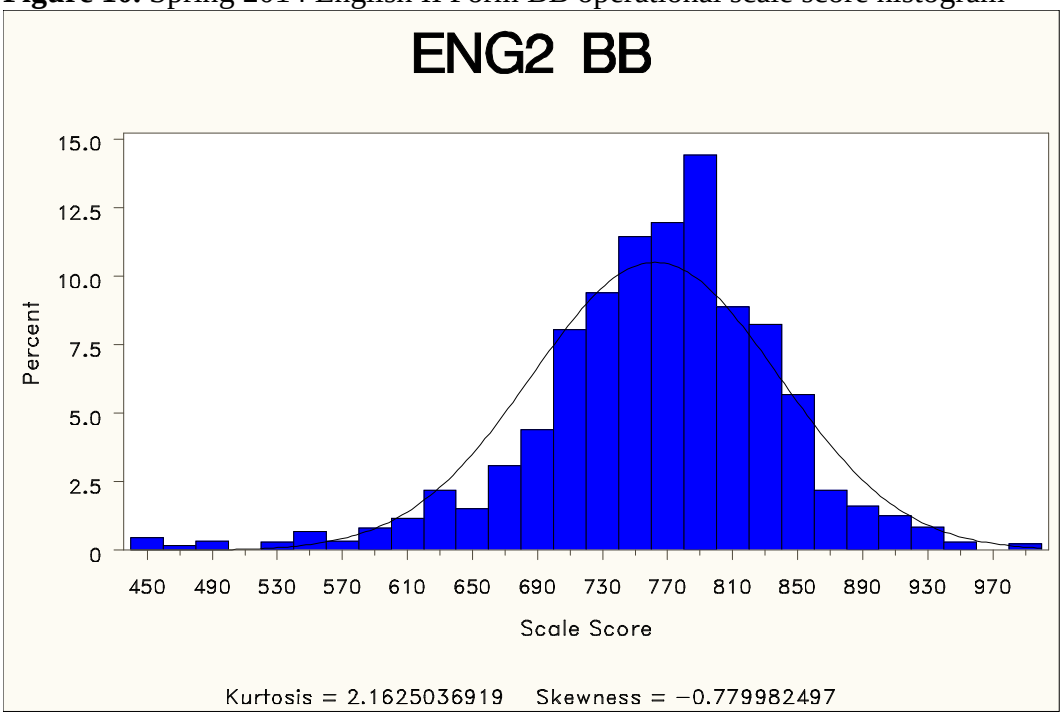


Figure 11. Spring 2014 English III Form AA operational scale score histogram

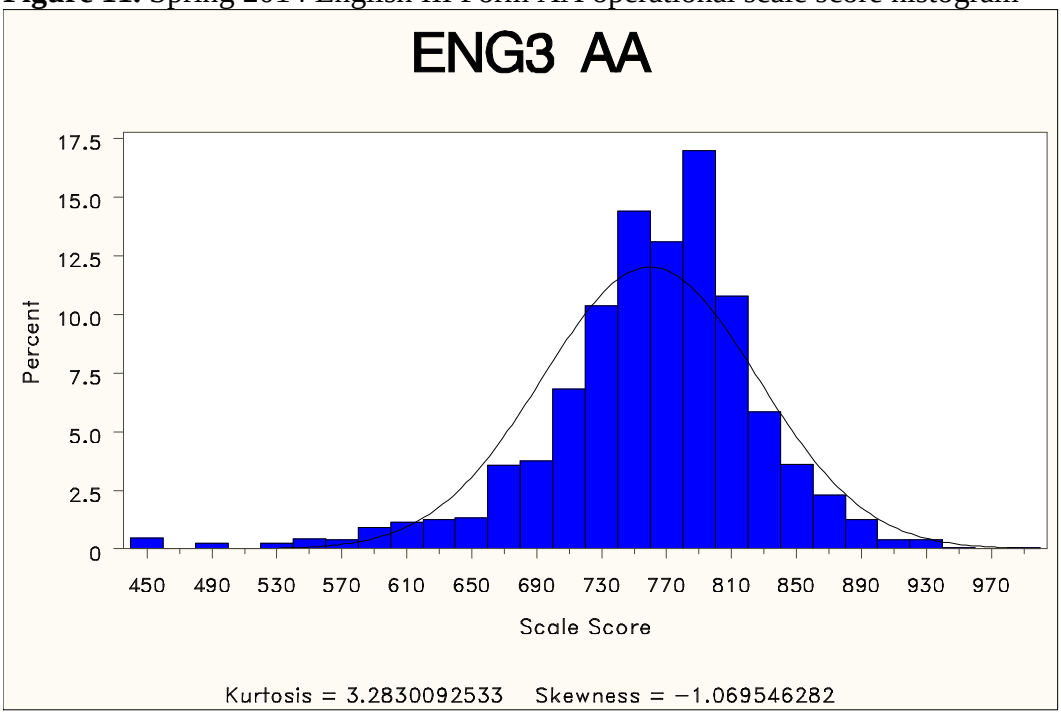


Figure 12. Spring 2014 English III Form AB operational scale score histogram

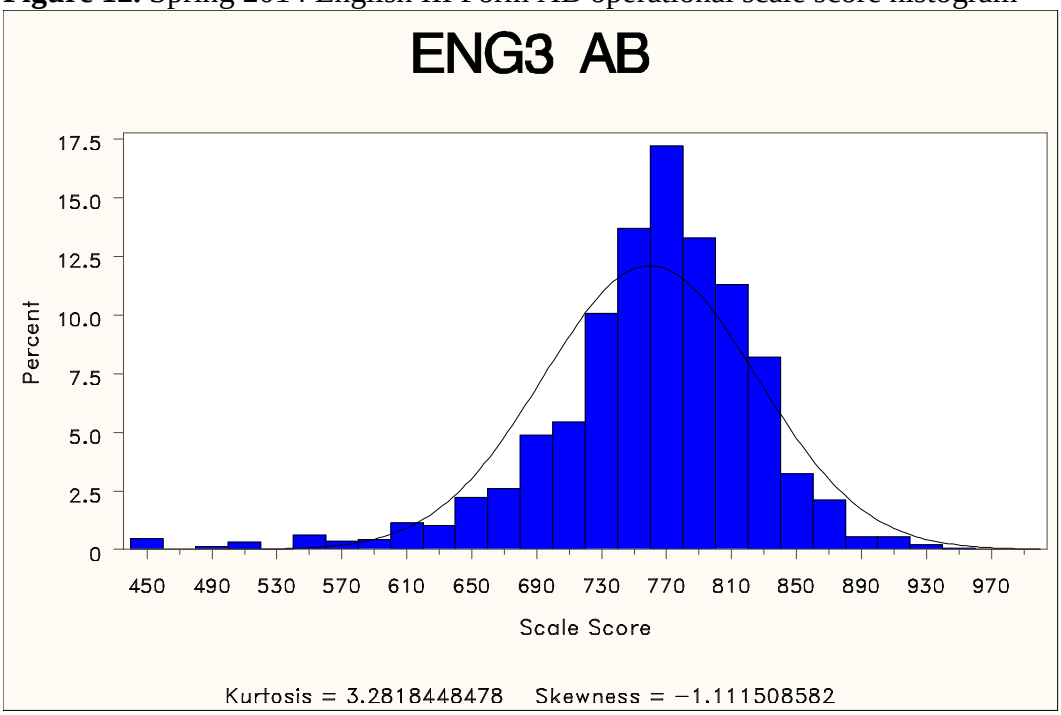


Figure 13. Spring 2014 English III Form BA operational scale score histogram

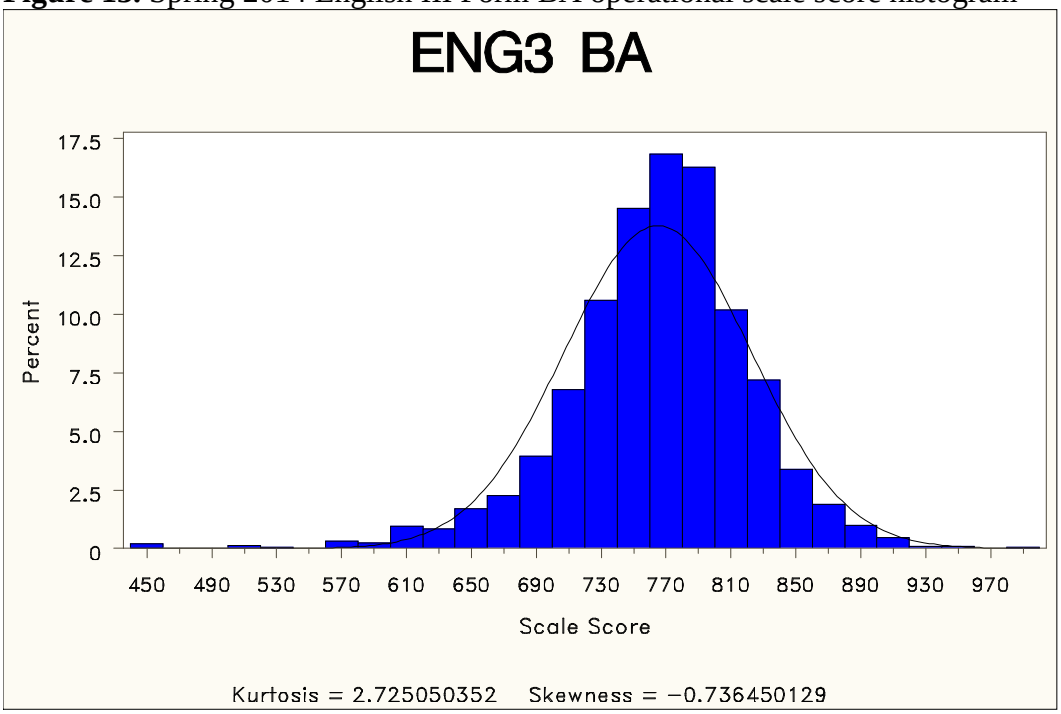


Figure 14. Spring 2014 English III Form BB operational scale score histogram

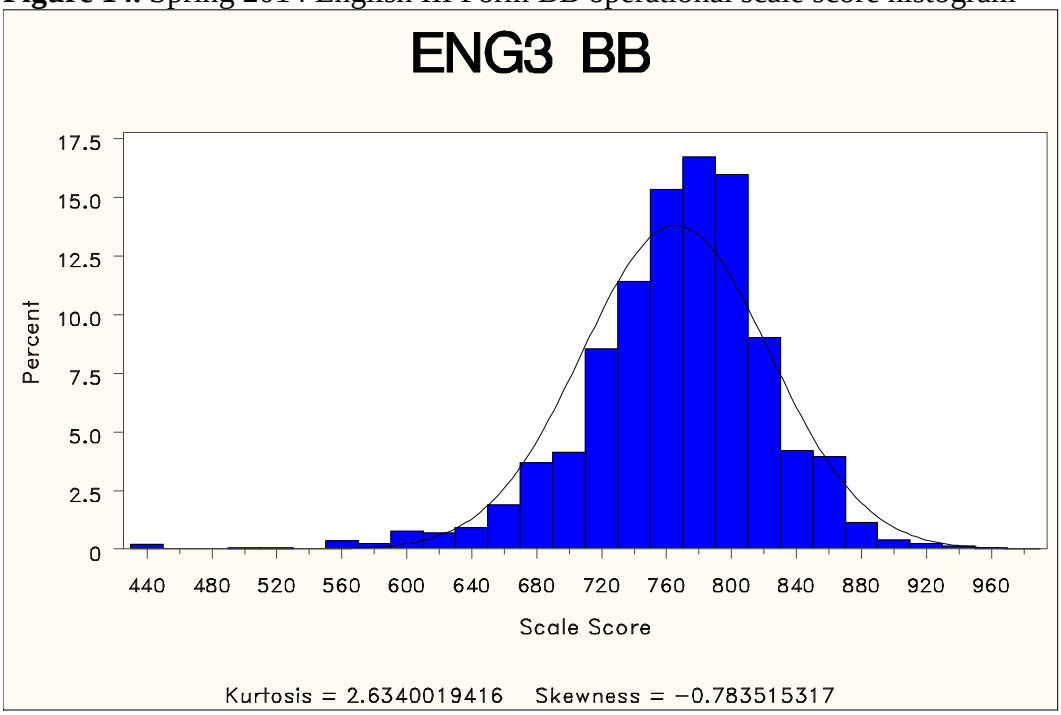


Figure 15. Spring 2014 Geometry Form A operational scale score histogram

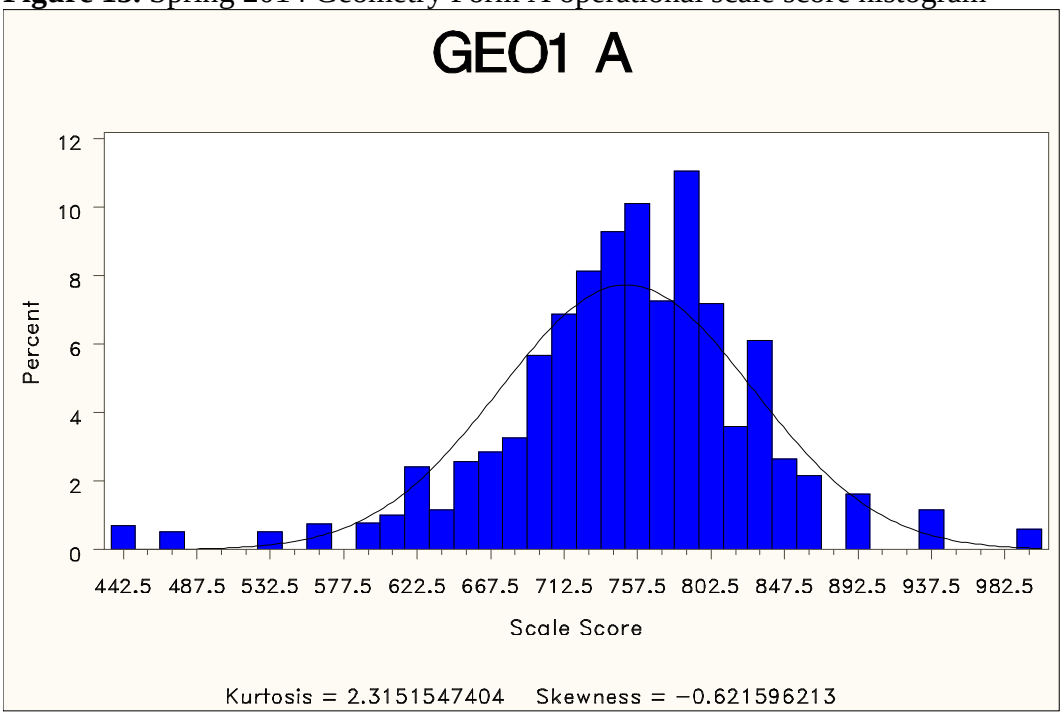


Figure 16. Spring 2014 Geometry Form B operational scale score histogram

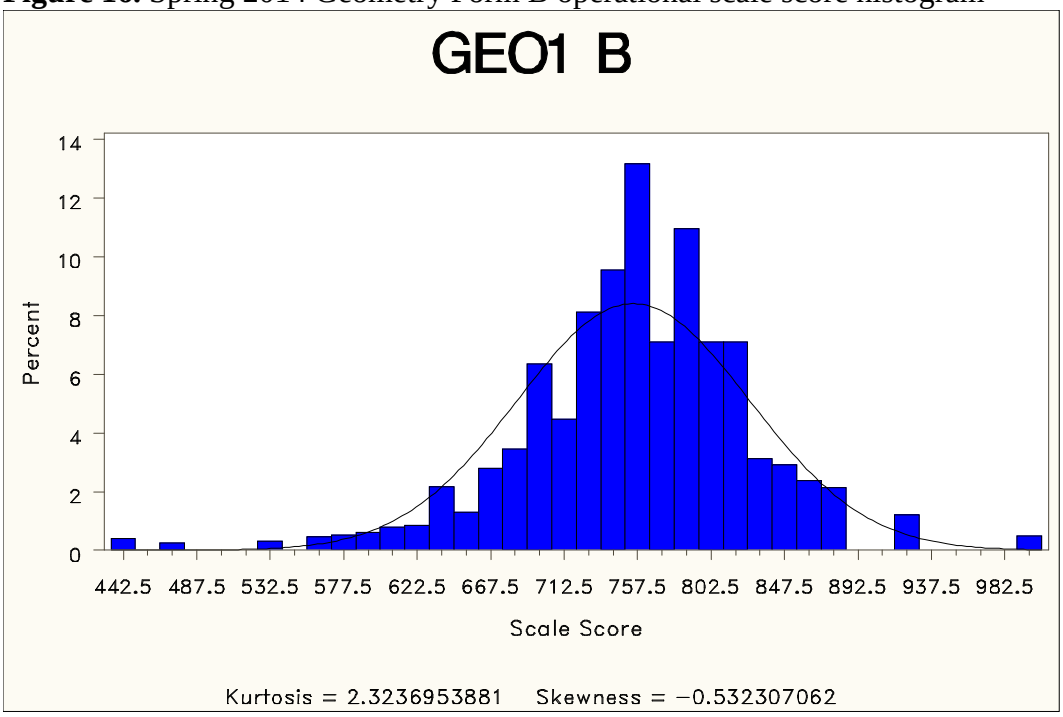


Figure 17. Spring 2014 U.S. History Form A operational scale score histogram

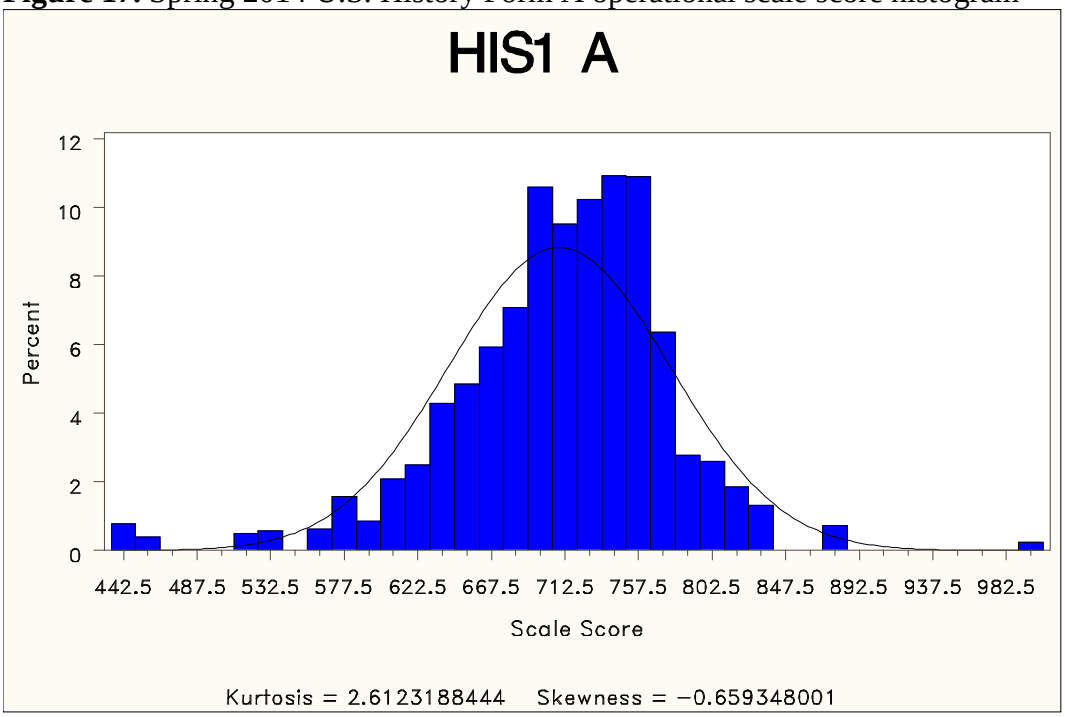


Figure 18. Spring 2014 U.S. History Form B operational scale score histogram

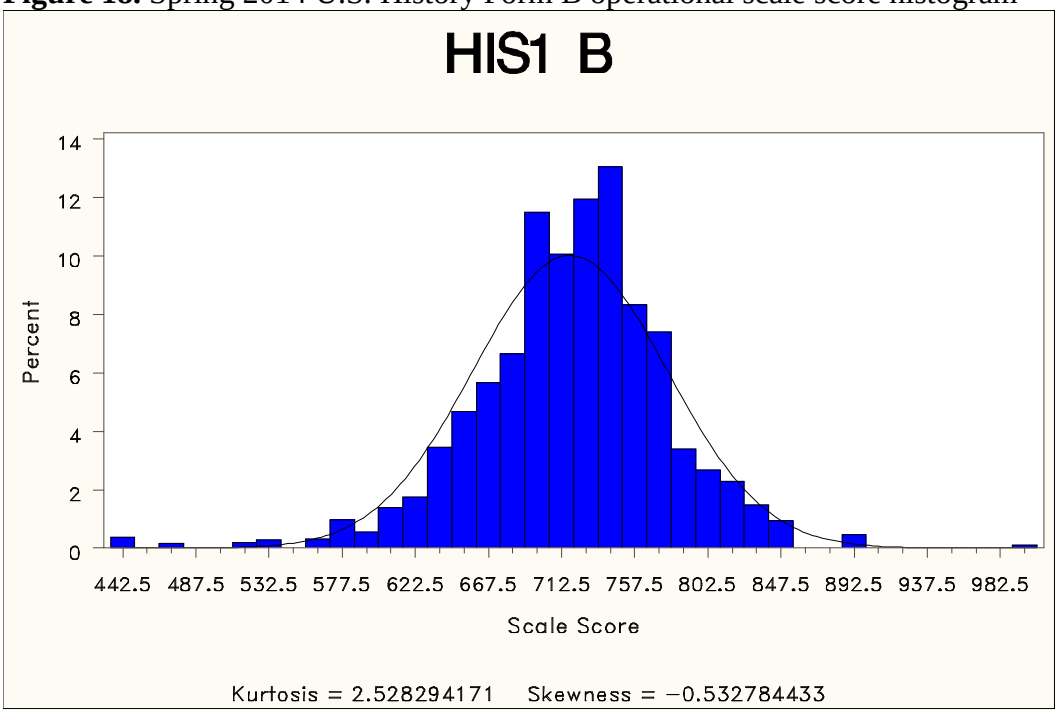
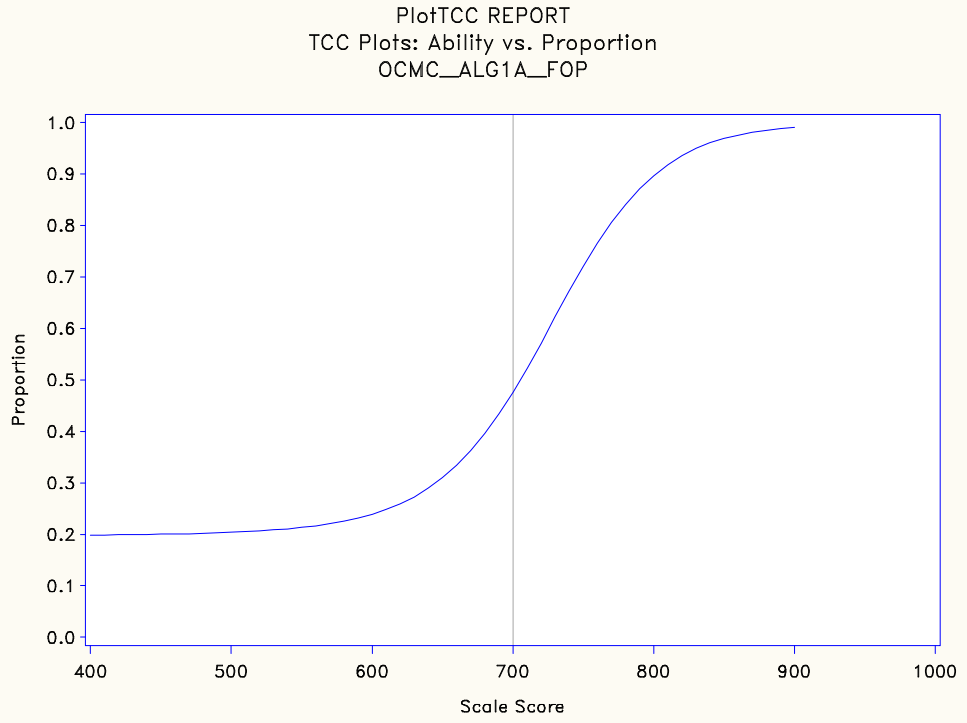


Figure 19. Spring 2014 Algebra 1 Form A operational test characteristic curve and standard error of measurement curve



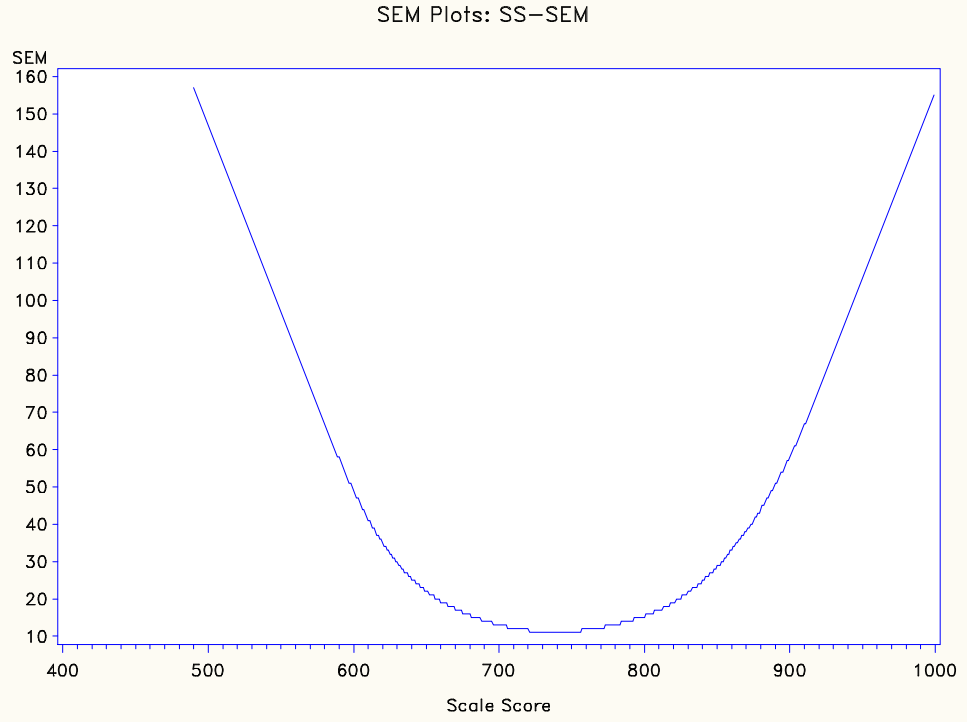
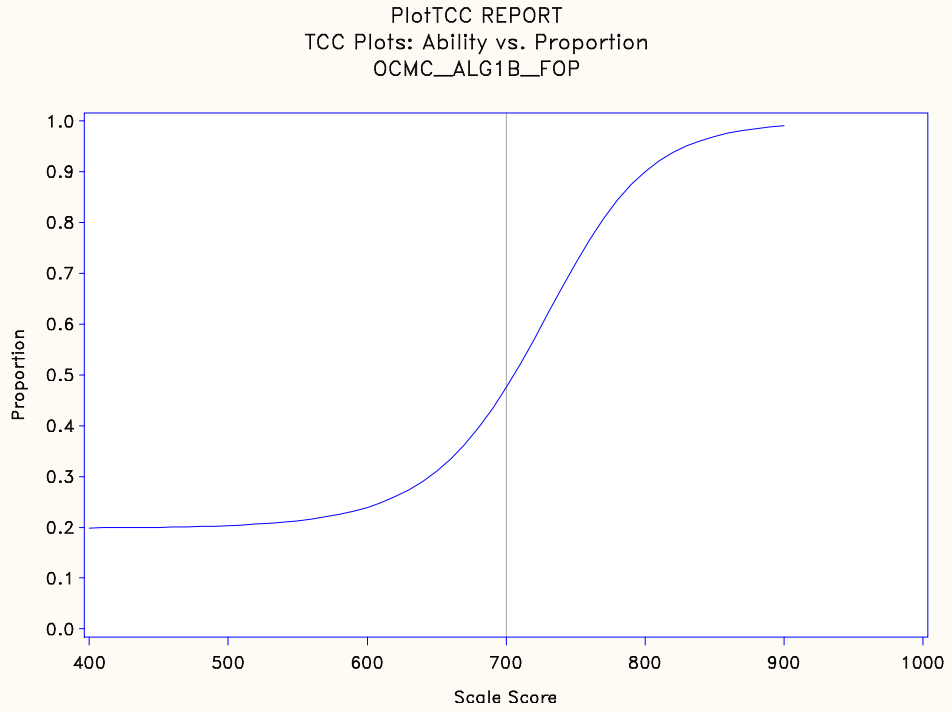


Figure 20. Spring 2014 Algebra 1 Form B operational test characteristic curve and standard error of measurement curve



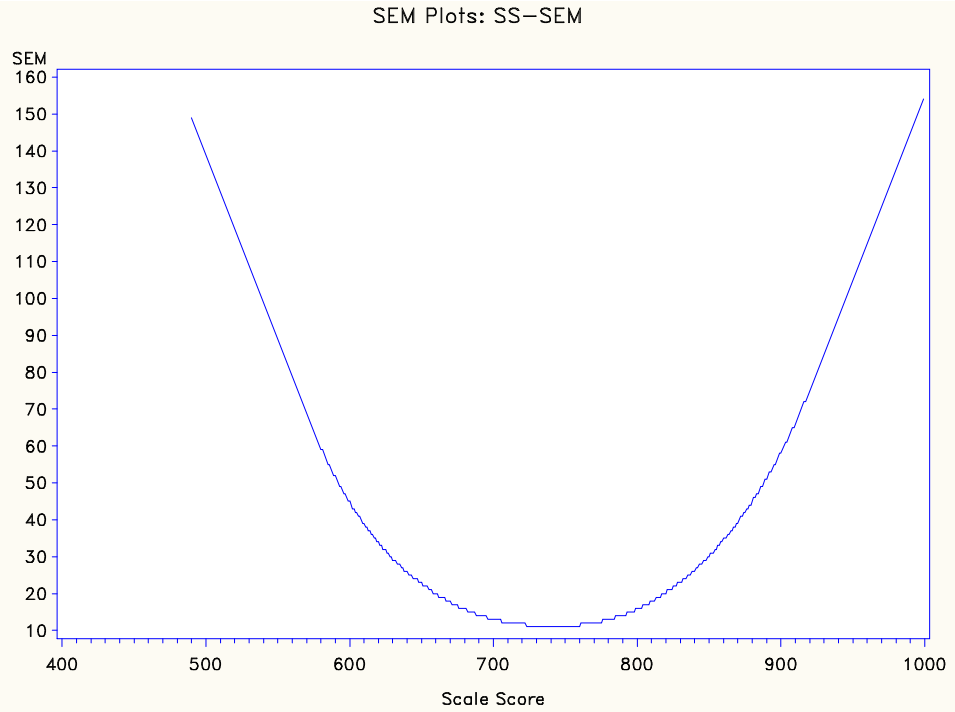
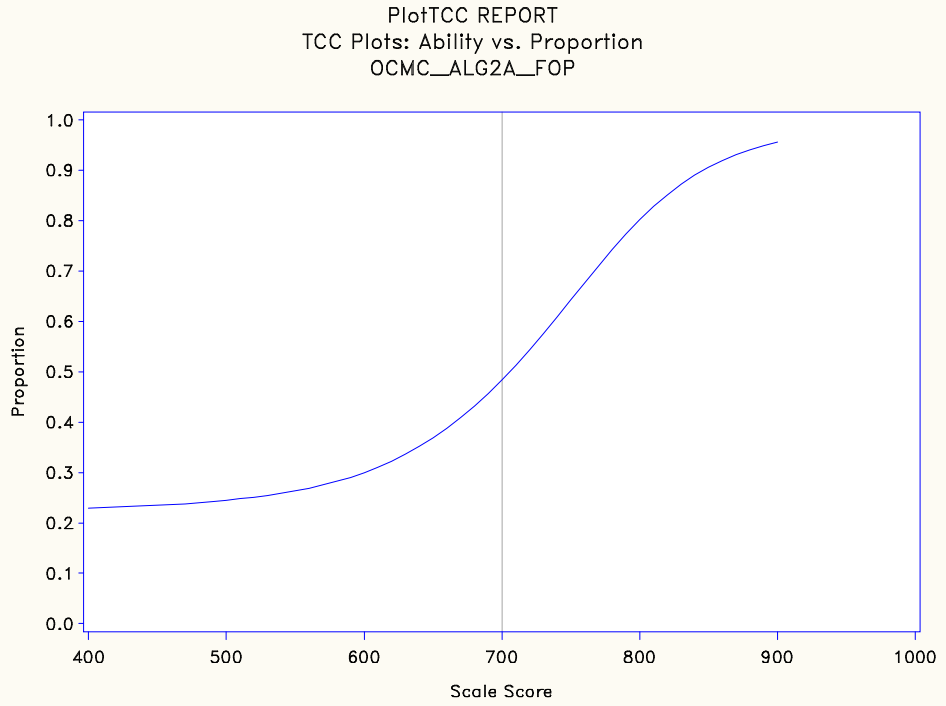


Figure 21. Spring 2014 Algebra I1 Form A operational test characteristic curve and standard error of measurement curve



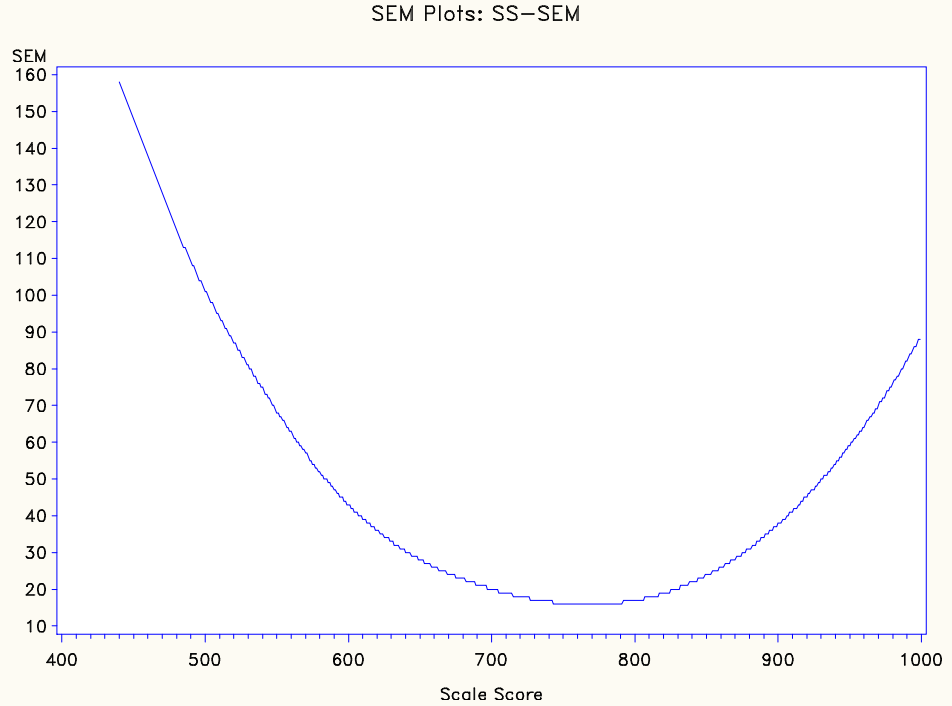
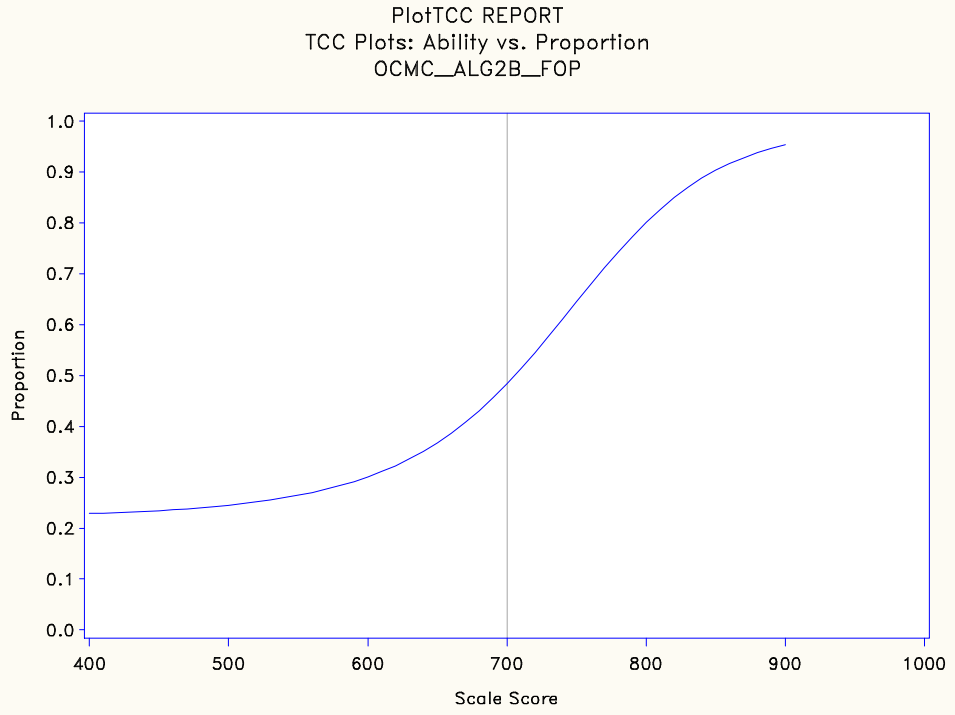


Figure 22. Spring 2014 Algebra 1I Form B operational test characteristic curve and standard error of measurement curve



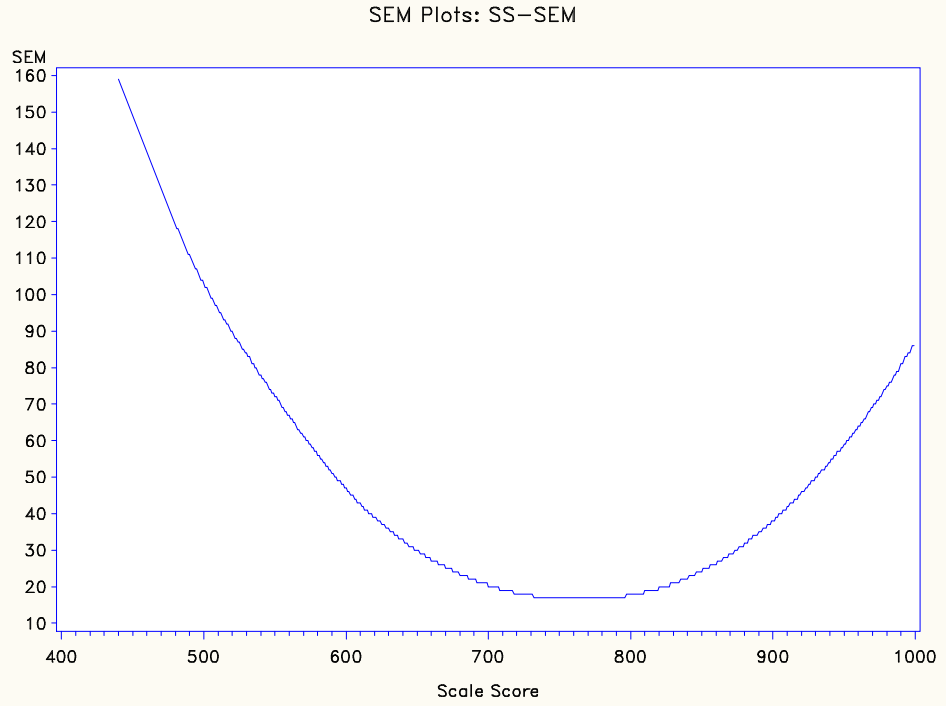
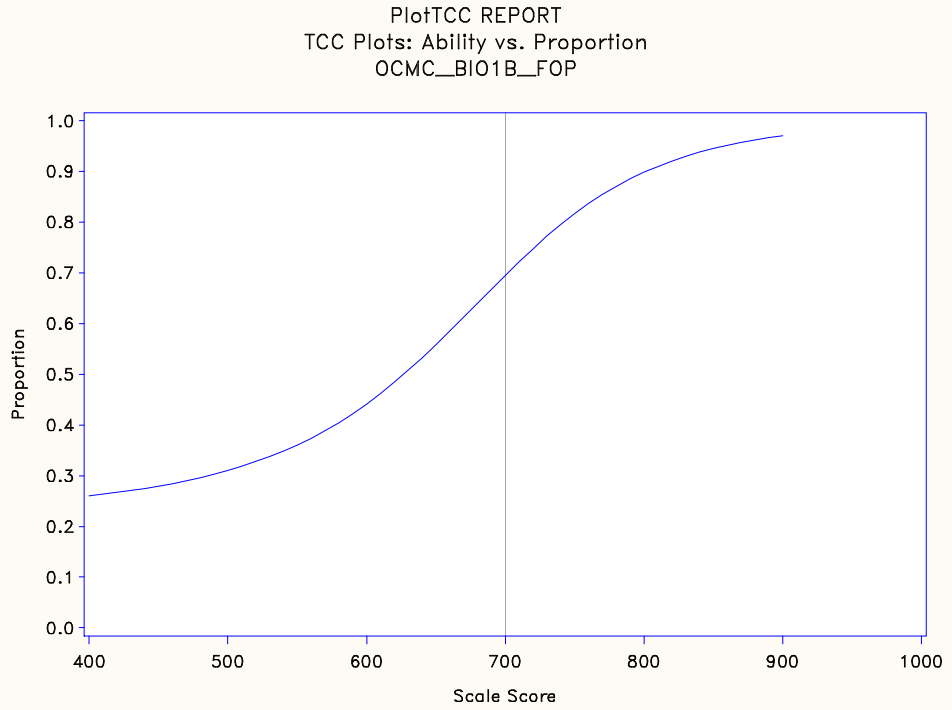


Figure 23. Spring 2014 Biology I Form A operational test characteristic curve and standard error of measurement curve



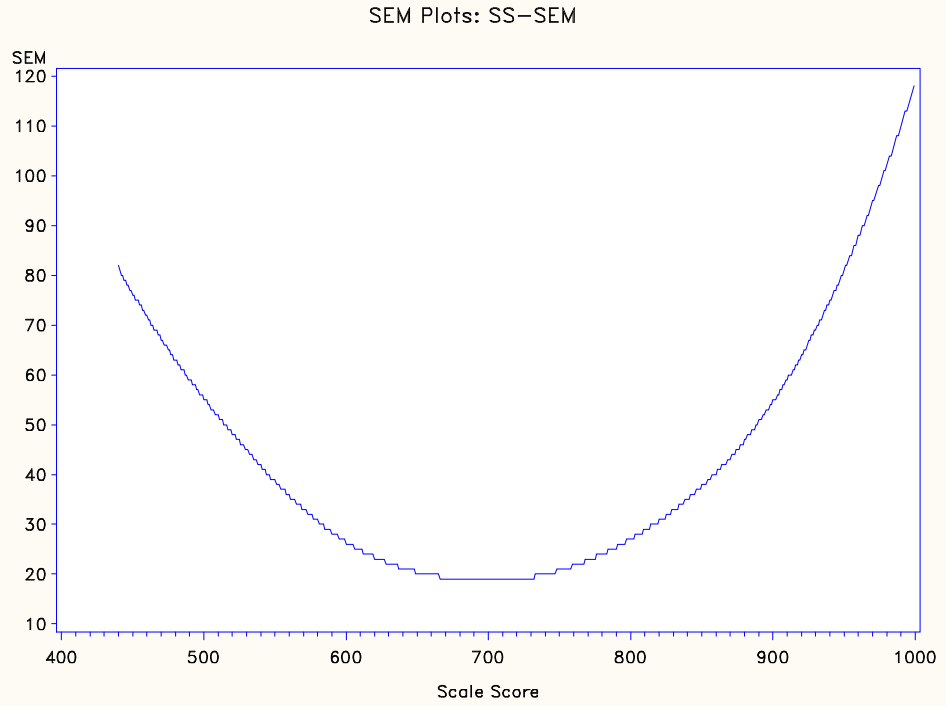
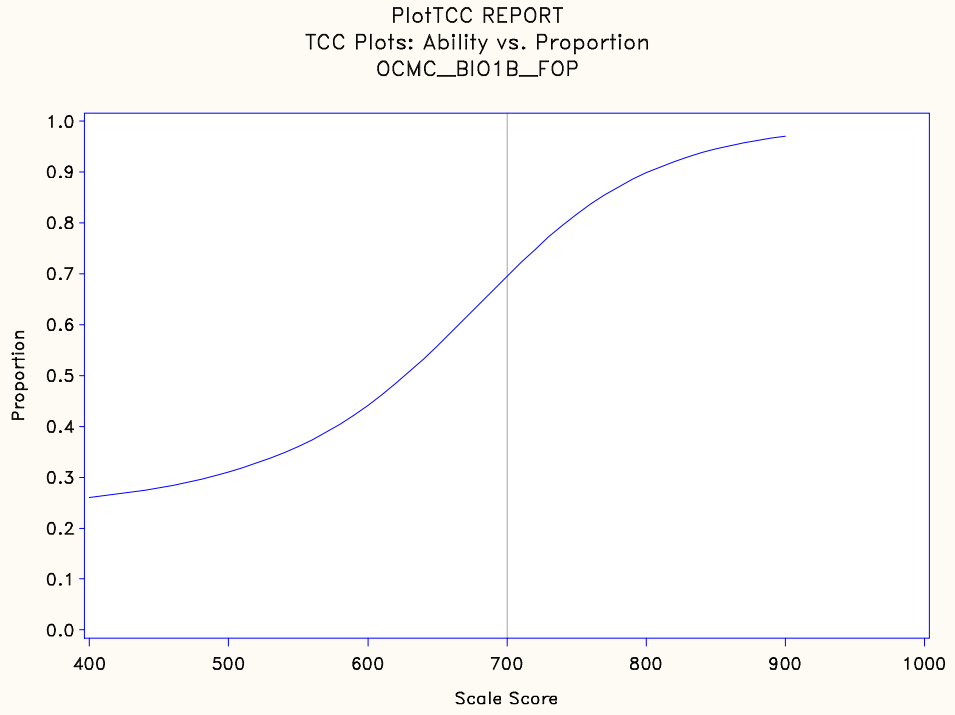


Figure 24. Spring 2014 Biology I Form B operational test characteristic curve and standard error of measurement curve



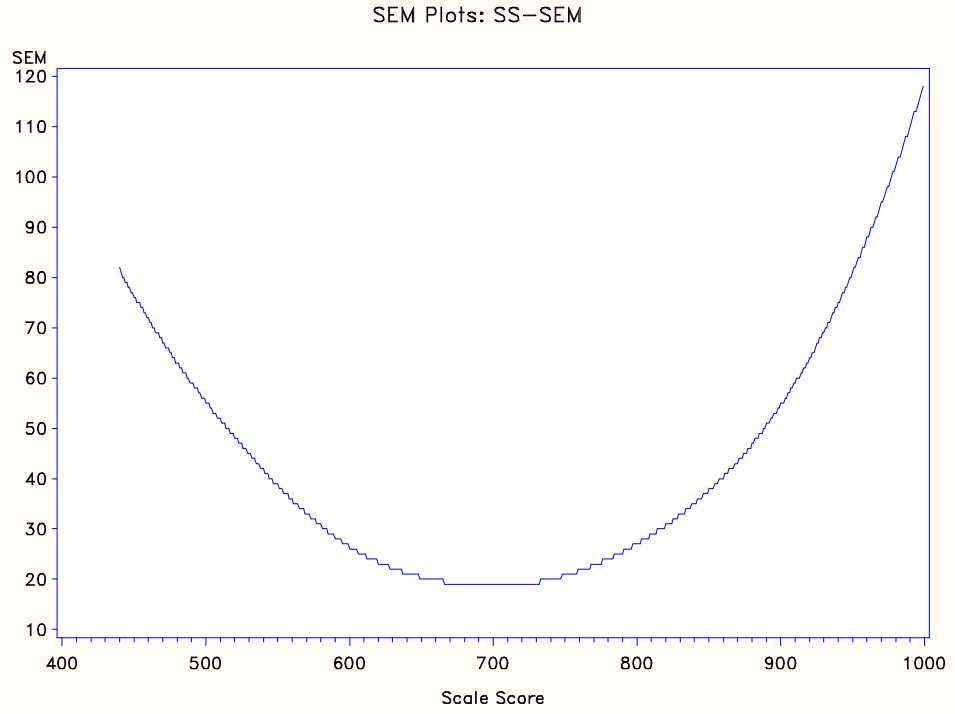
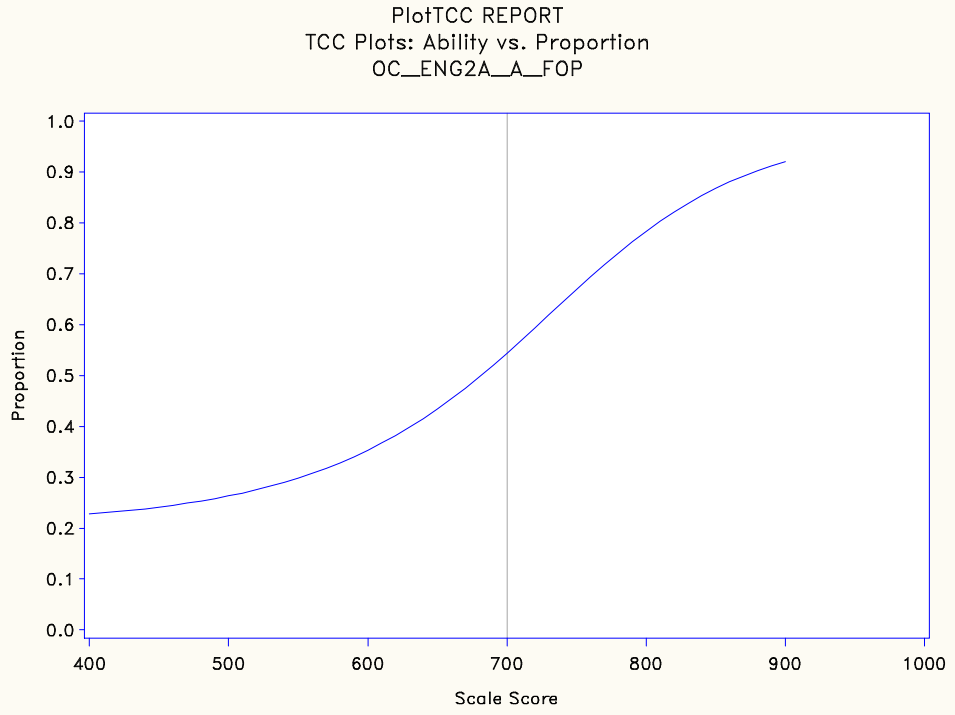


Figure 25. Spring 2014 English II Form AA operational test characteristic curve and standard error of measurement curve



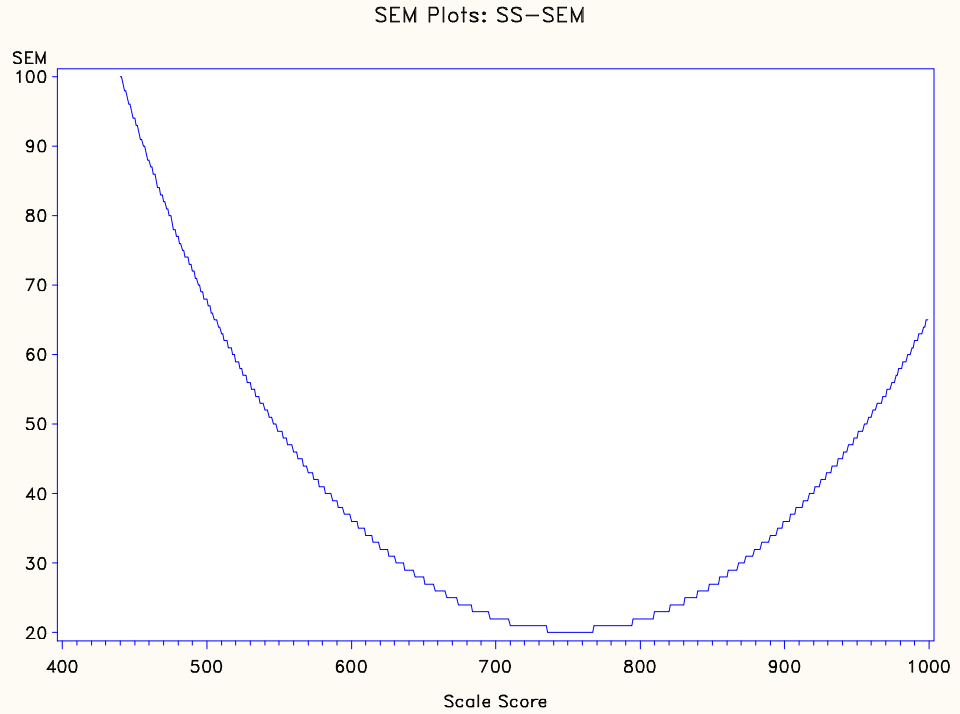
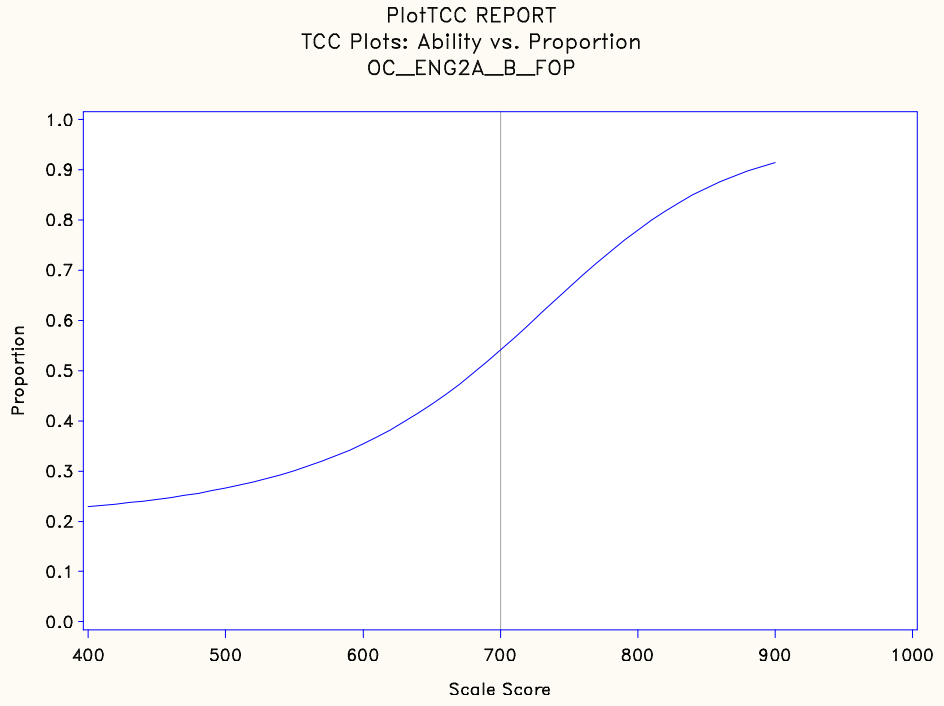


Figure 26. Spring 2014 English II Form AB operational test characteristic curve and standard error of measurement curve



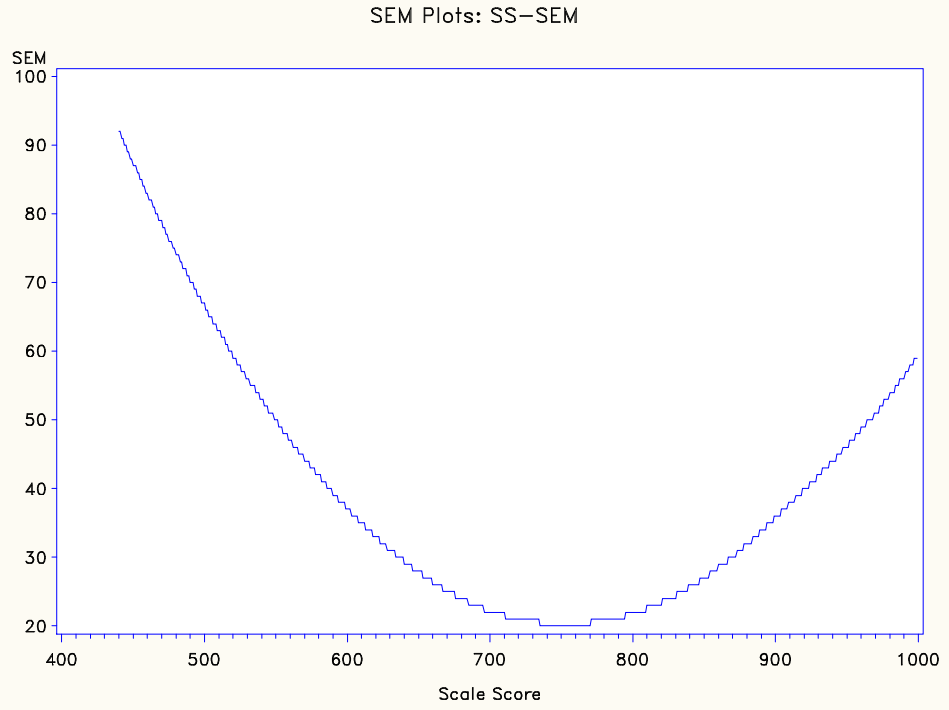
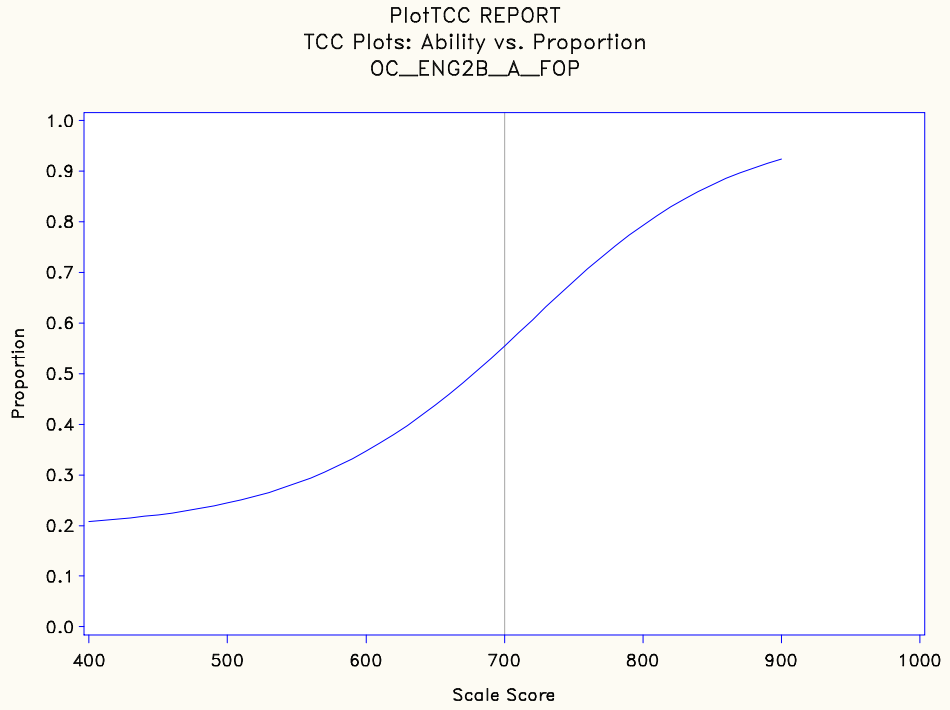


Figure 27. Spring 2014 English II Form BA operational test characteristic curve and standard error of measurement curve



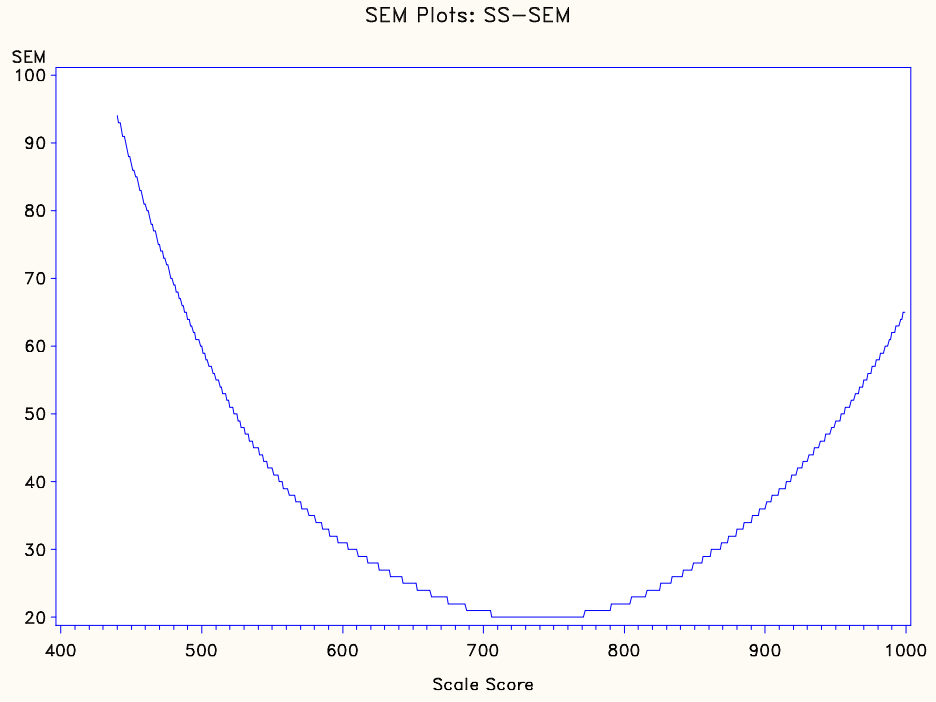
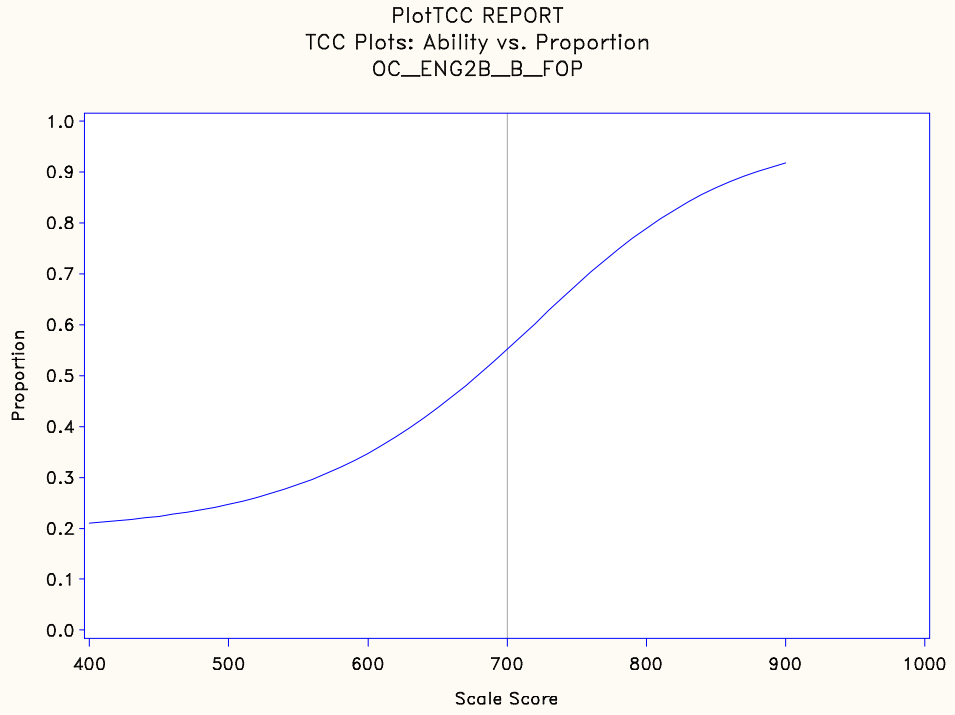


Figure 28. Spring 2014 English II Form BB operational test characteristic curve and standard error of measurement curve



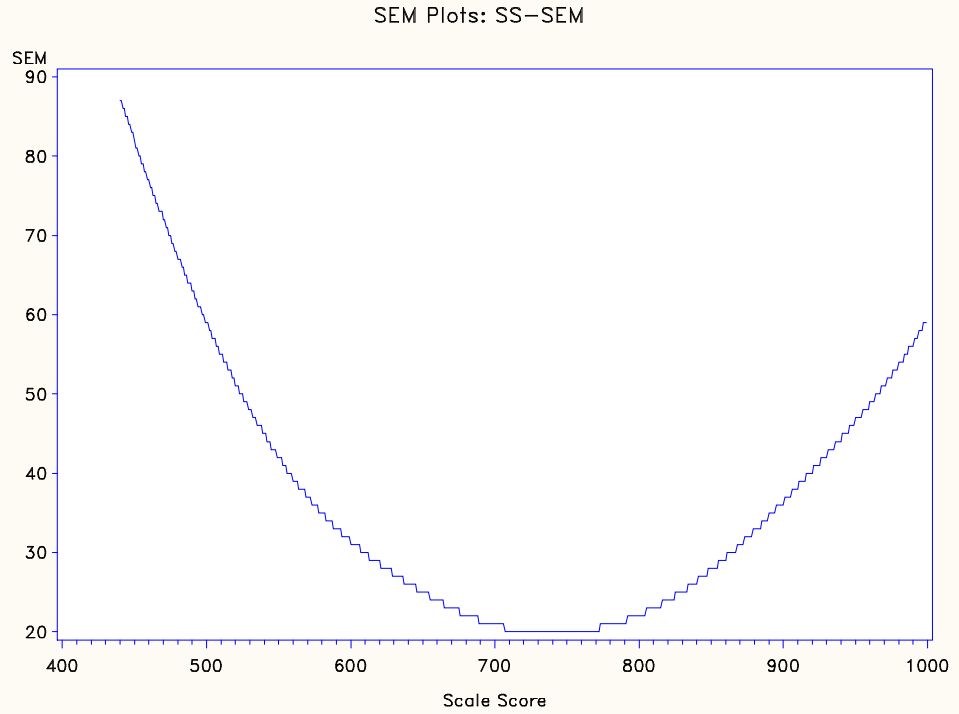
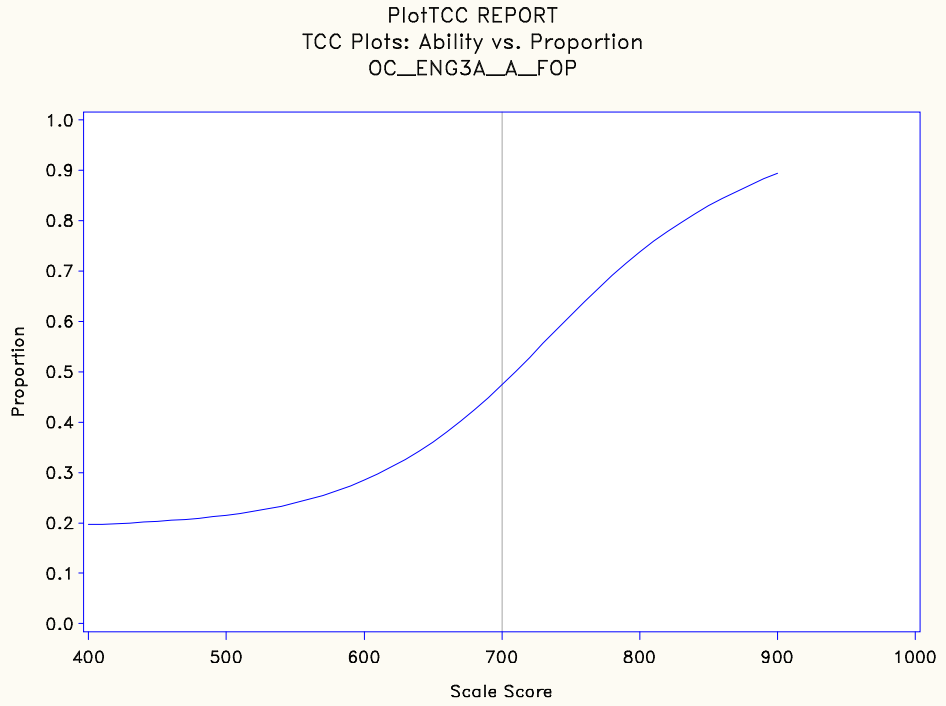


Figure 29. Spring 2014 English III Form AA operational test characteristic curve and standard error of measurement curve



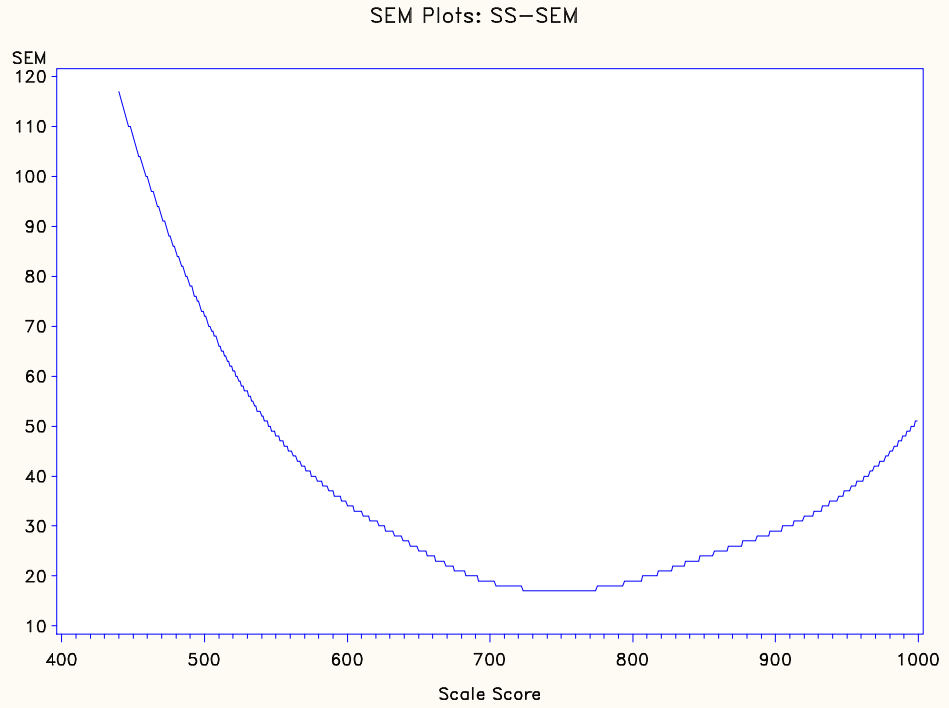
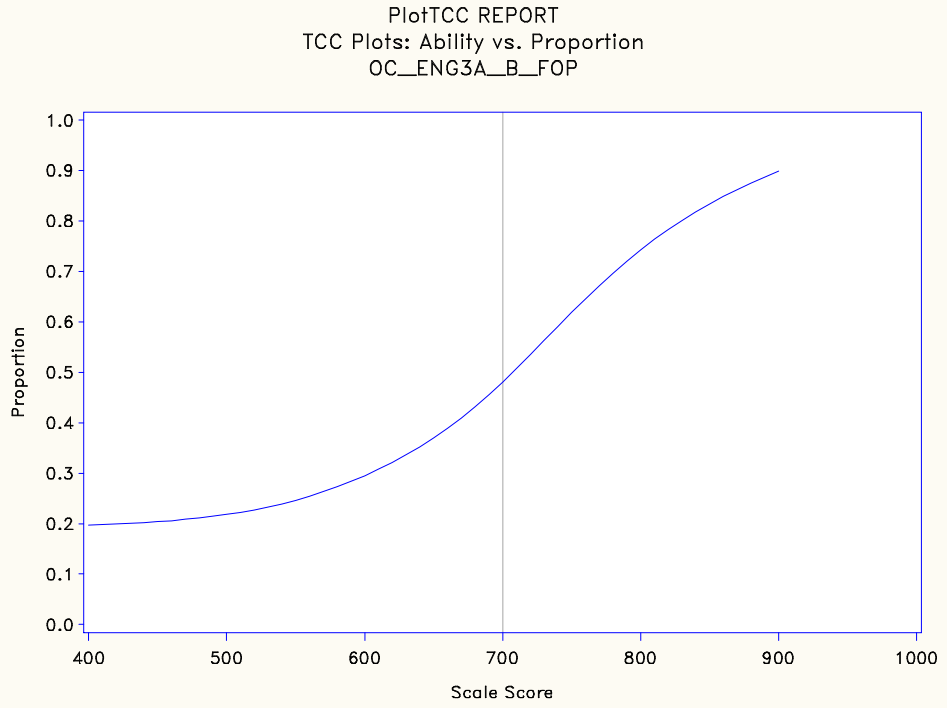


Figure 30. Spring 2014 English III Form AB operational test characteristic curve and standard error of measurement curve



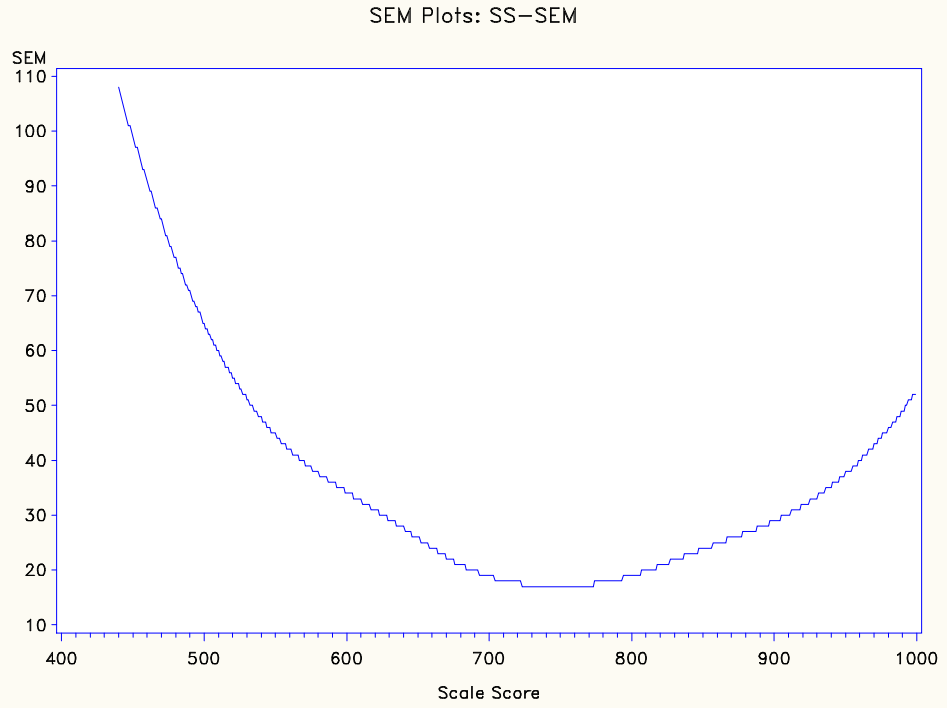
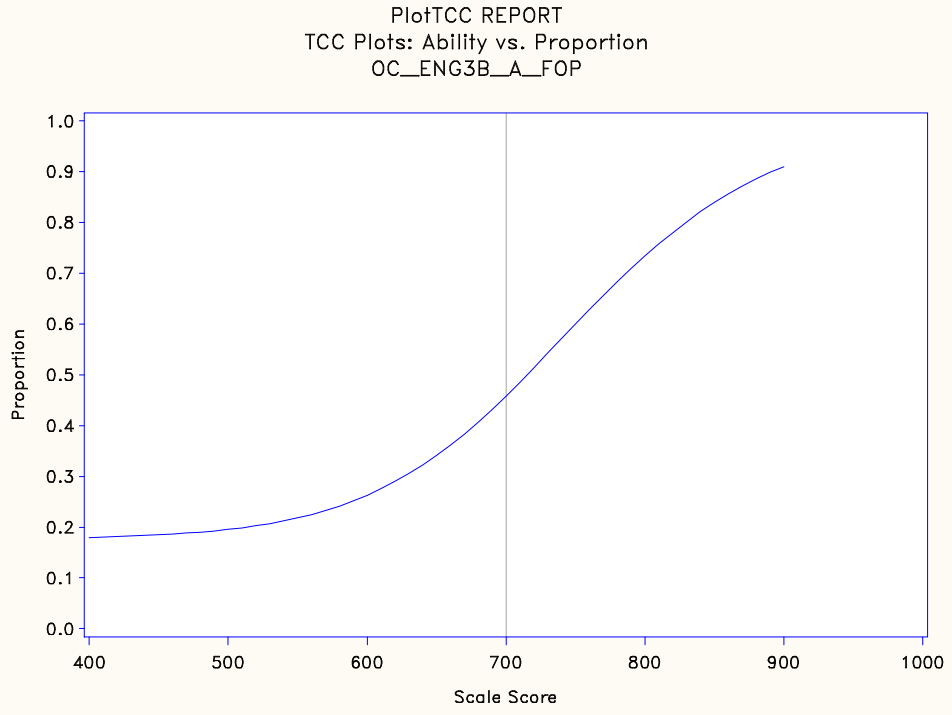


Figure 31. Spring 2014 English III Form BA operational test characteristic curve and standard error of measurement curve



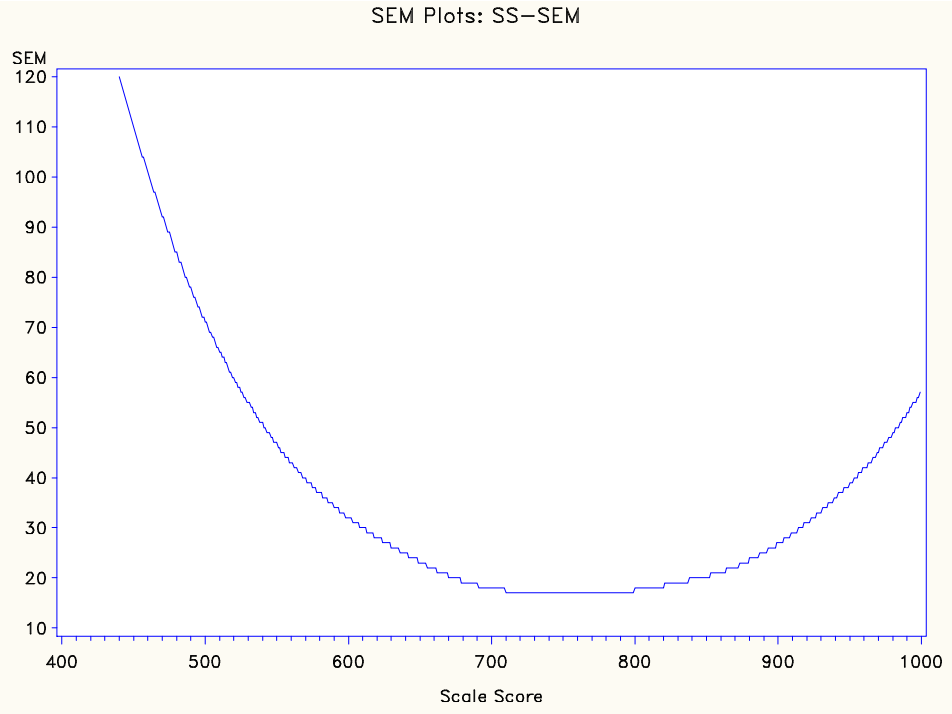
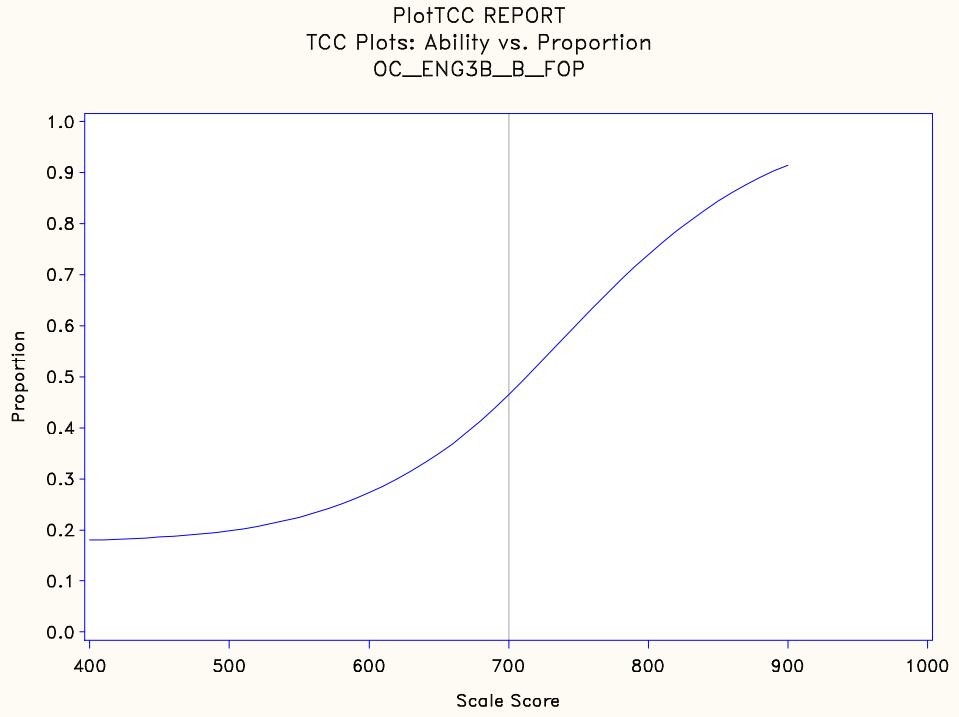


Figure 32. Spring 2014 English III Form BB operational test characteristic curve and standard error of measurement curve



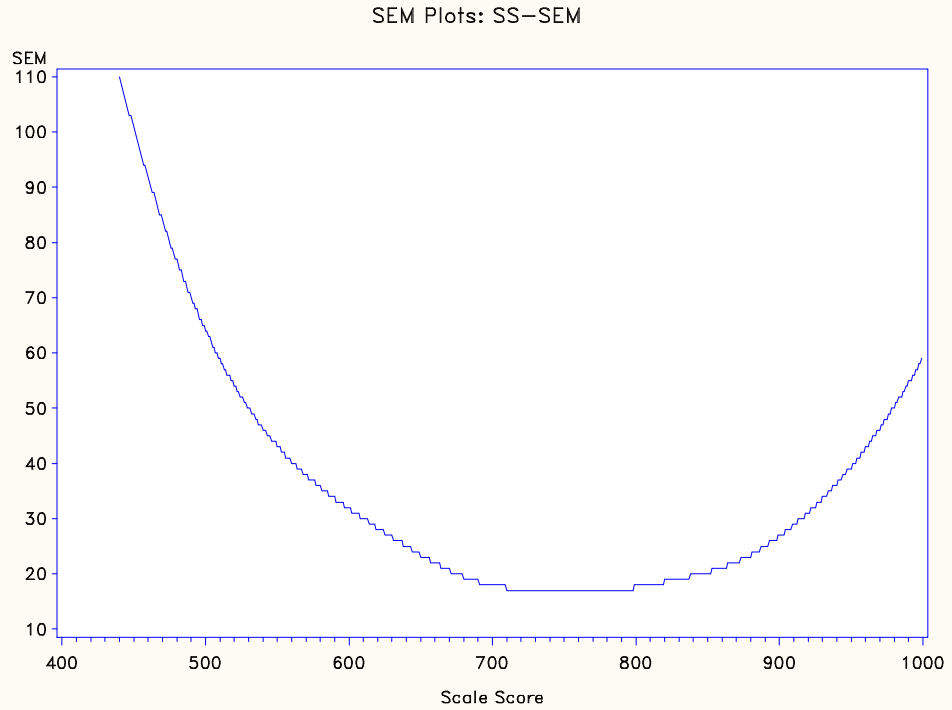
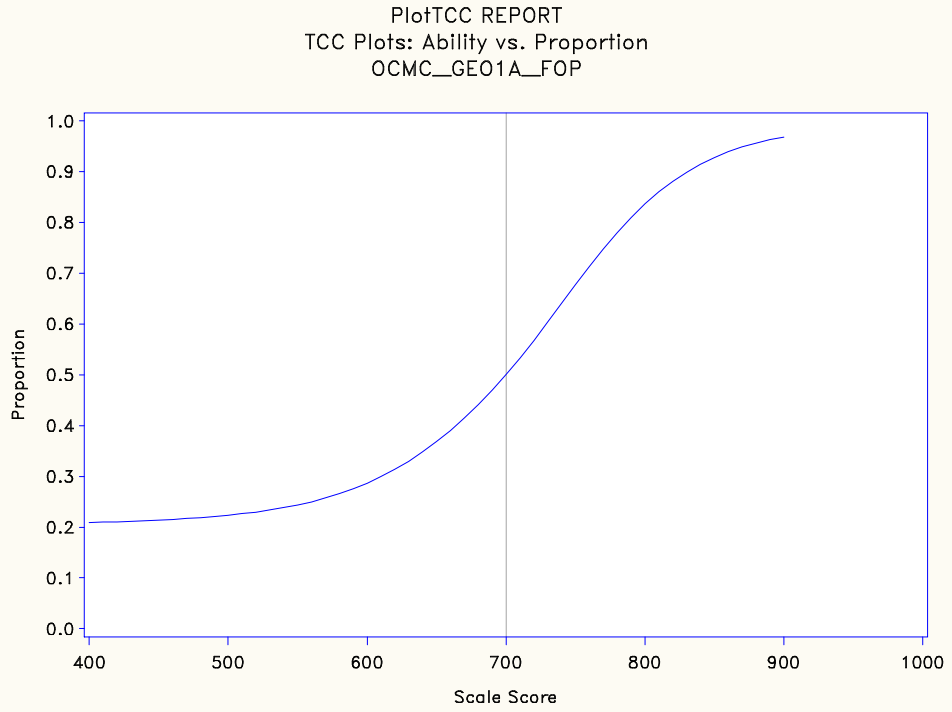


Figure 33. Spring 2014 Geometry Form A operational test characteristic curve and standard error of measurement curve



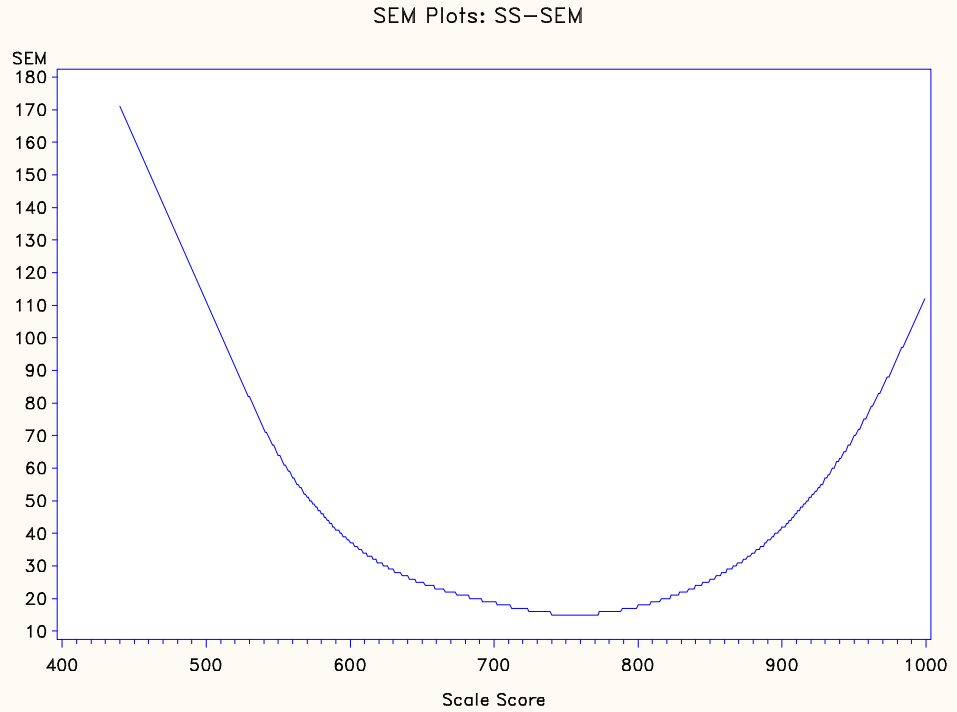
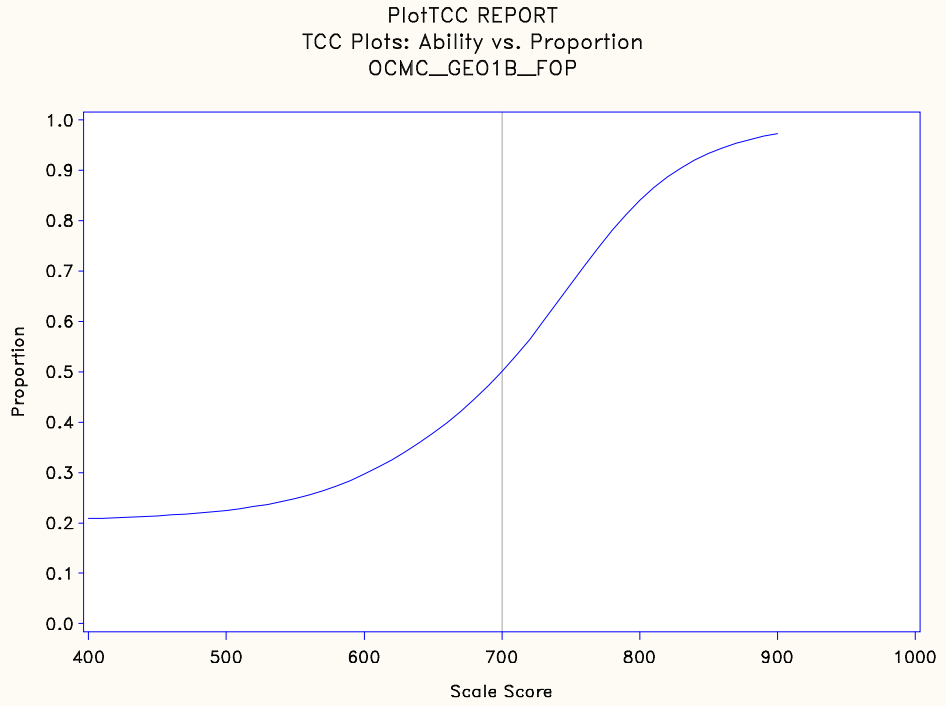


Figure 34. Spring 2014 Geometry Form B operational test characteristic curve and standard error of measurement curve



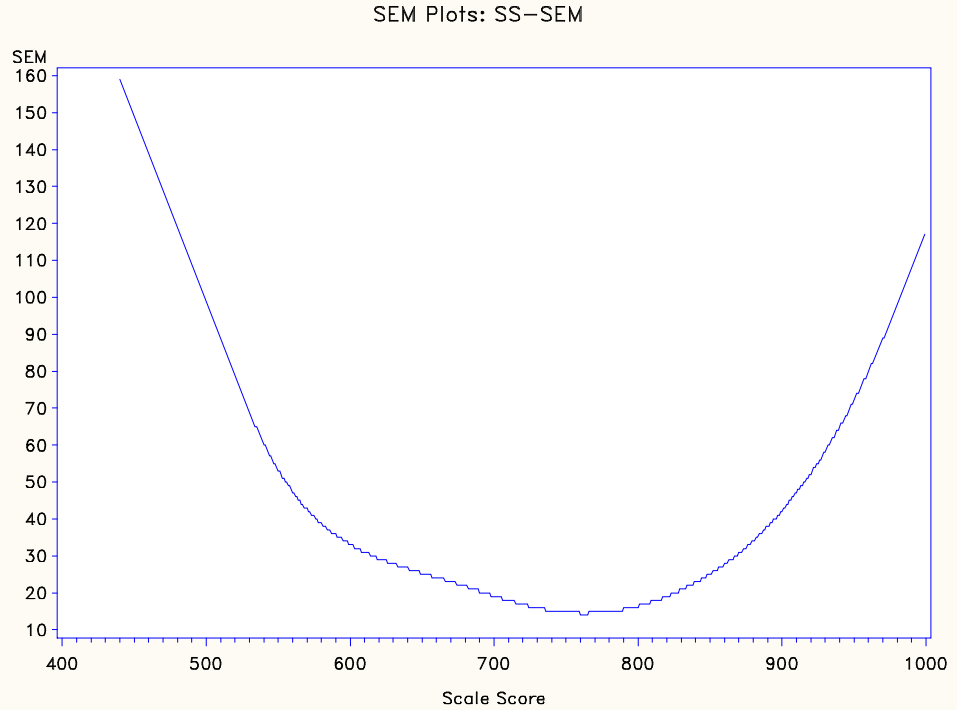
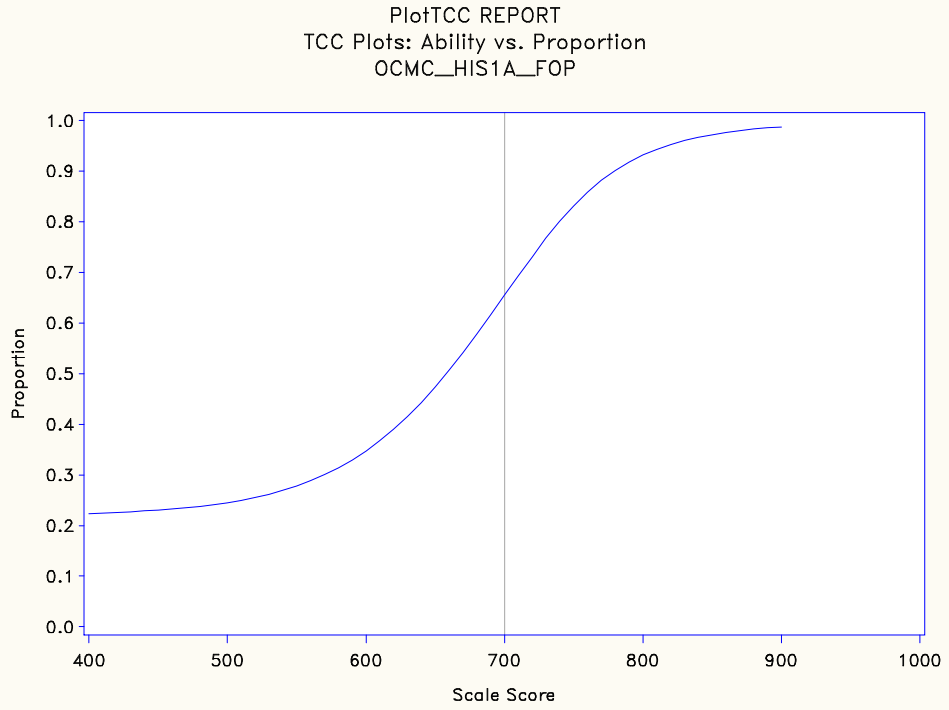


Figure 35. Spring 2014 U.S. History Form A operational test characteristic curve and standard error of measurement curve



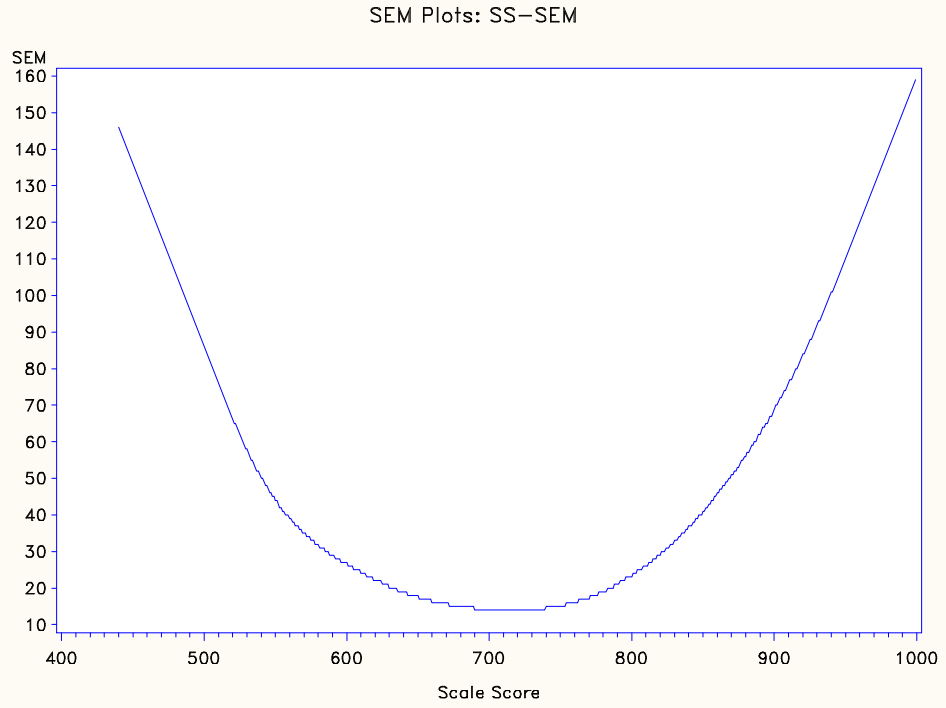
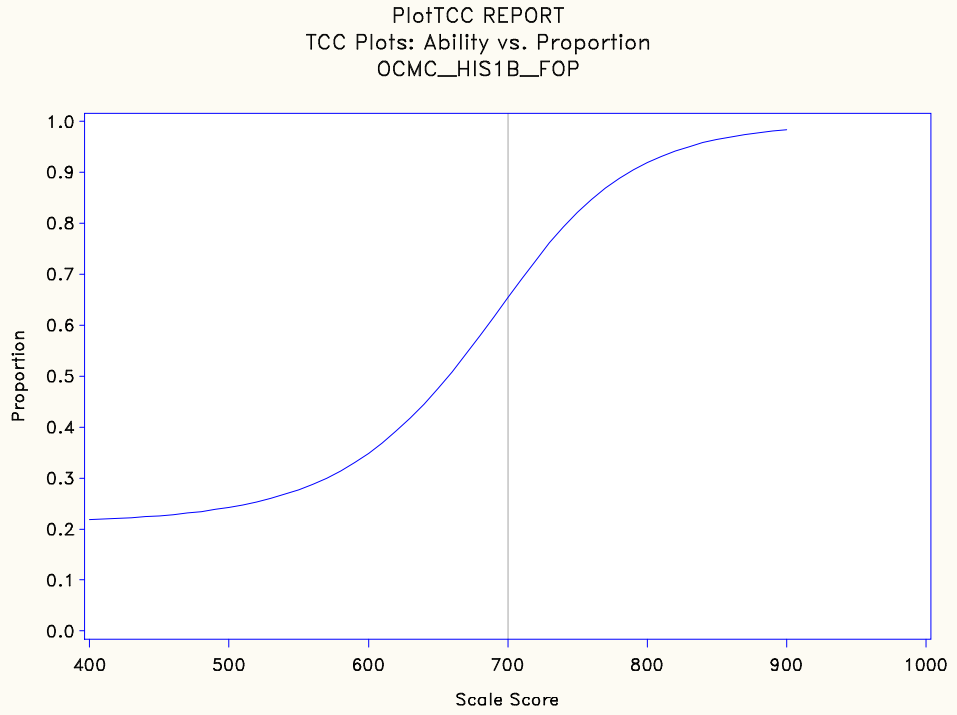


Figure 36. Spring 2014 U.S. History Form B operational test characteristic curve and standard error of measurement curve



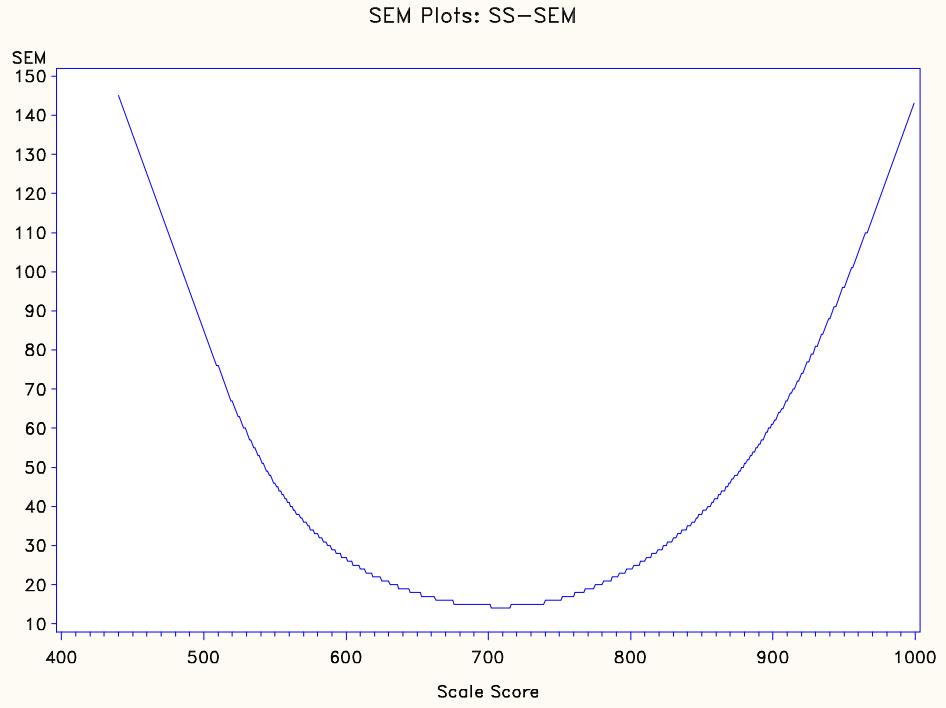


Figure 37. Spring 2014 Algebra I Form A scree plot: All

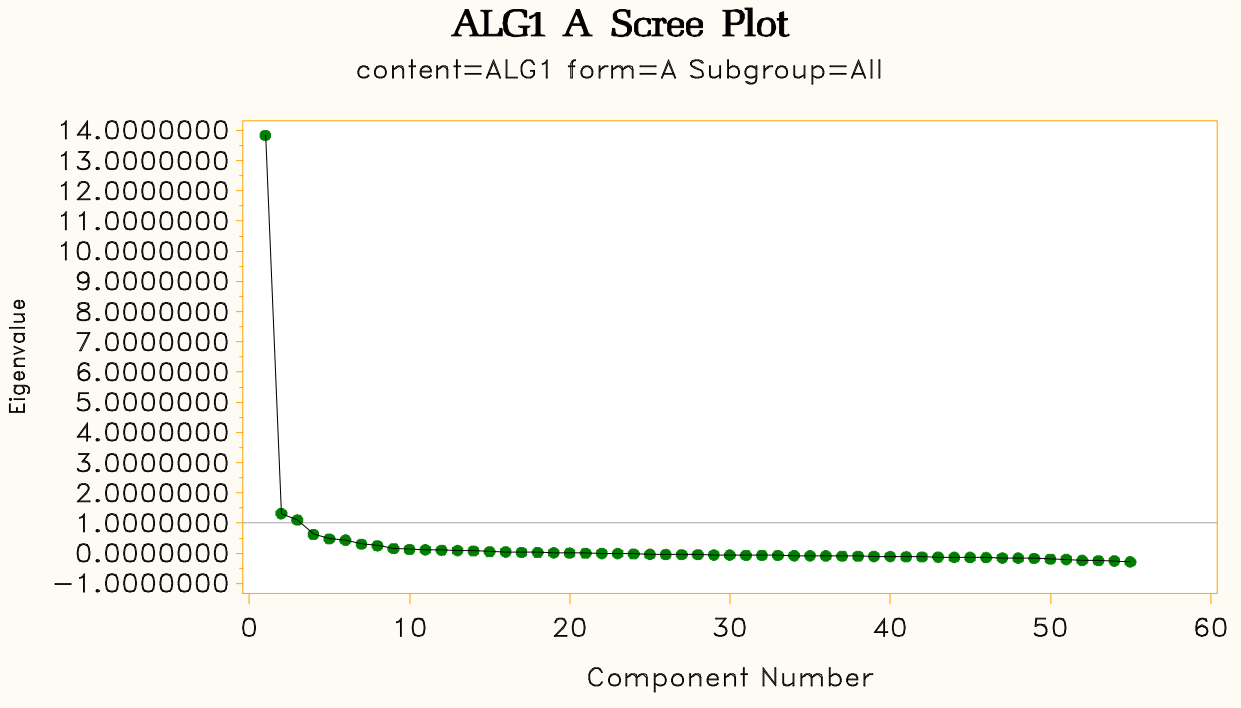


Figure 38. Spring 2014 Algebra I Form A scree plot: Accommodated

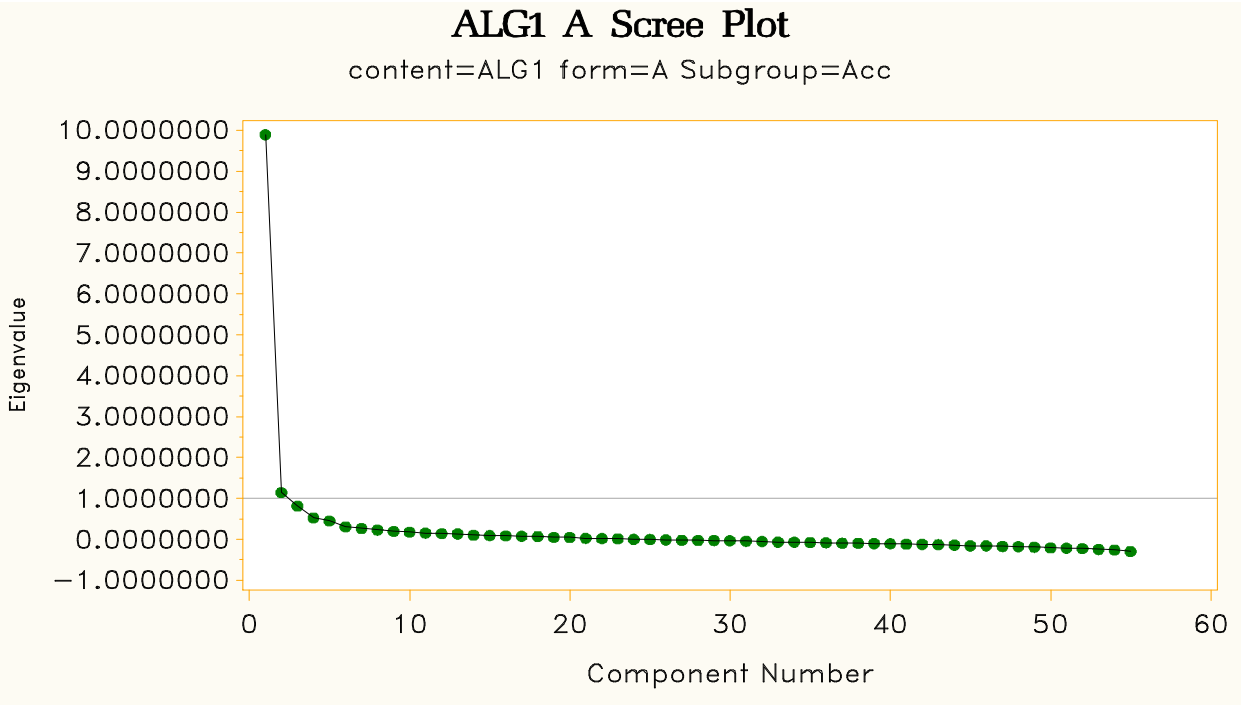


Figure 39. Spring 2014 Algebra I Form A scree plot: English Language Learner

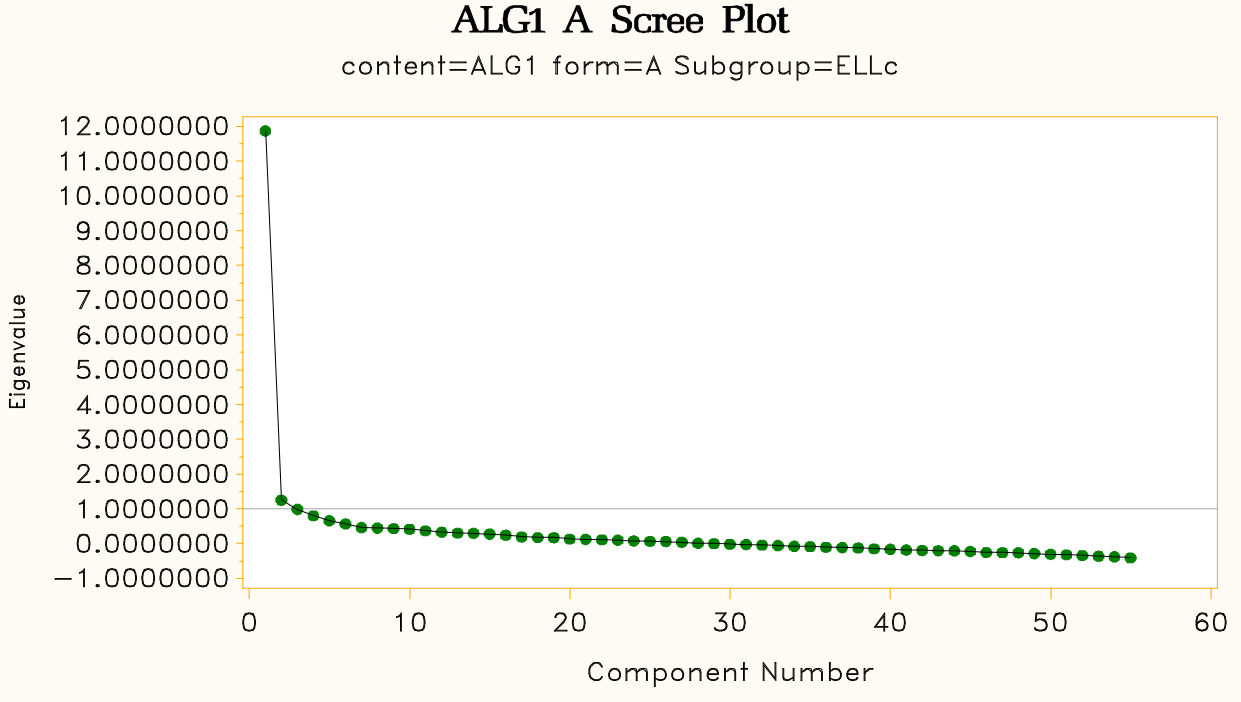


Figure 40. Spring 2014 Algebra I Form A scree plot: Individualized Education Program

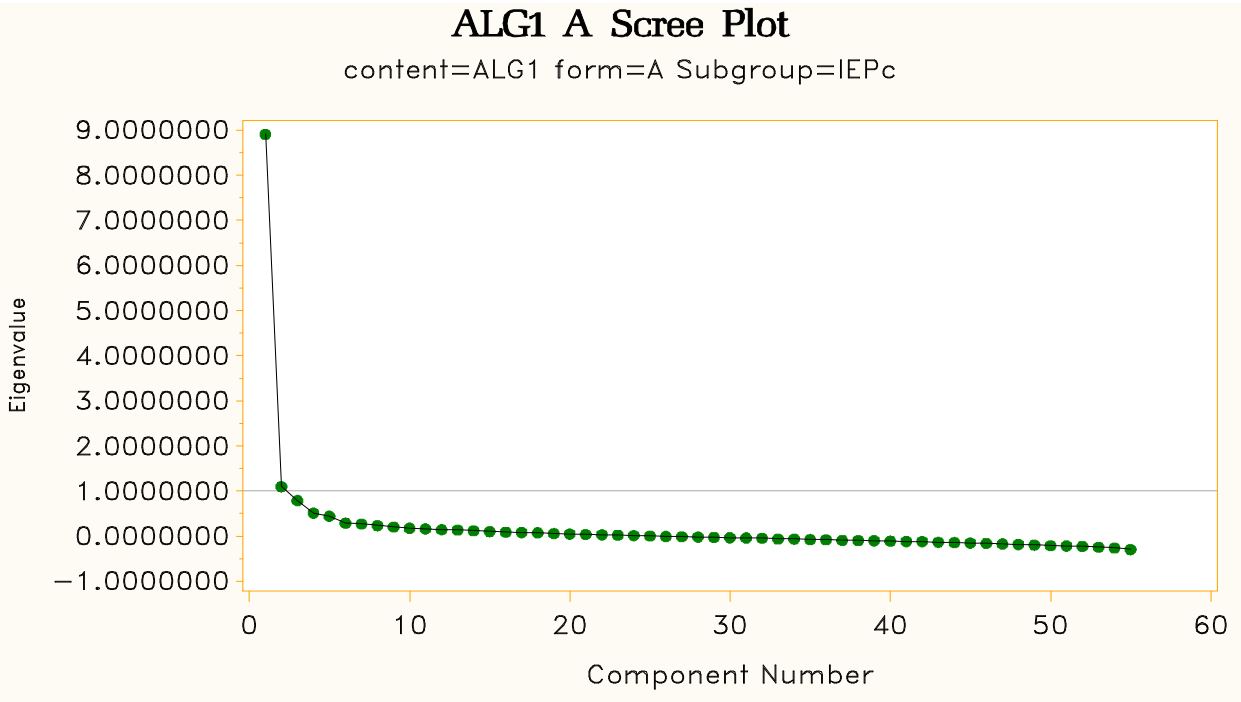


Figure 41. Spring 2014 Algebra I Form B scree plot: All

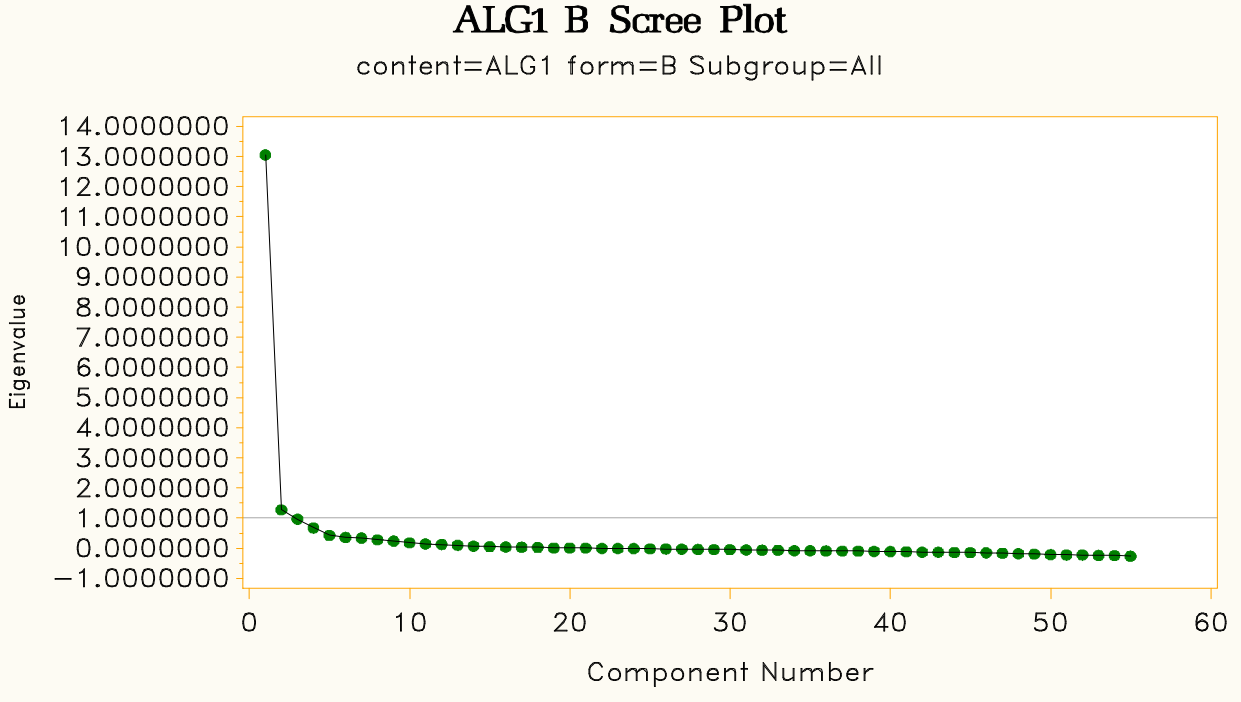


Figure 42. Spring 2014 Algebra I Form B scree plot: Accommodated

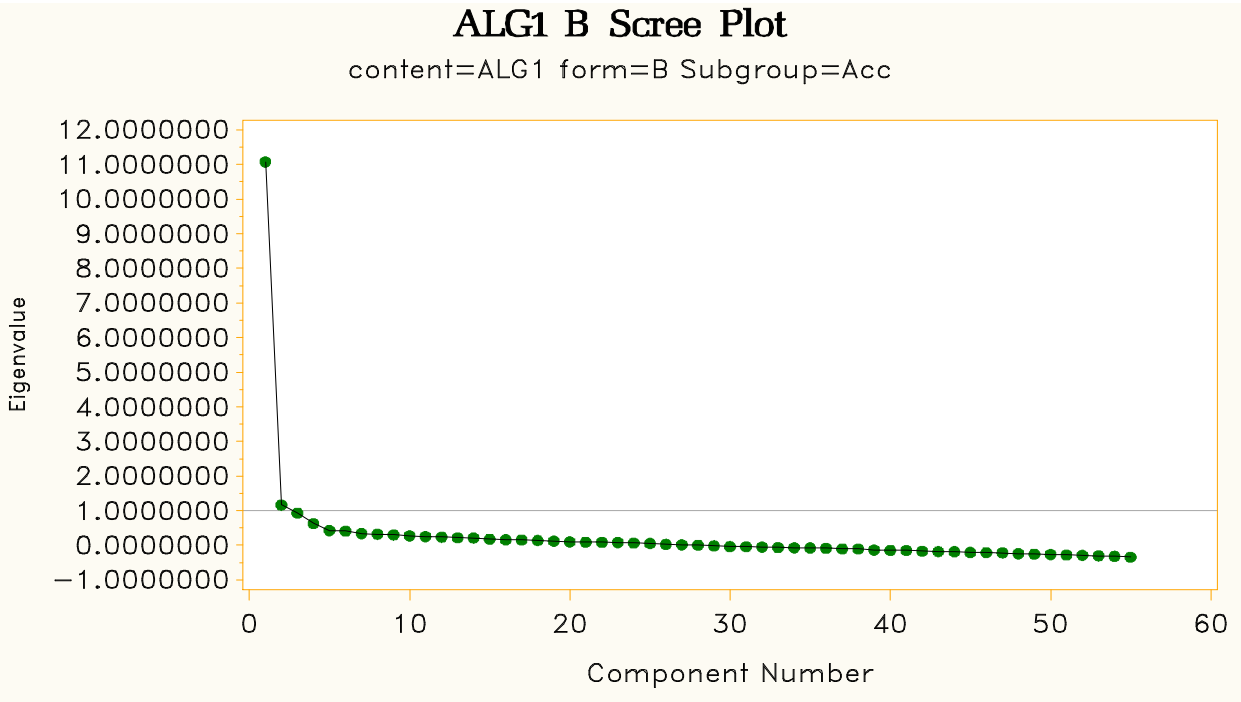


Figure 43. Spring 2014 Algebra I Form B scree plot: English Language Learner

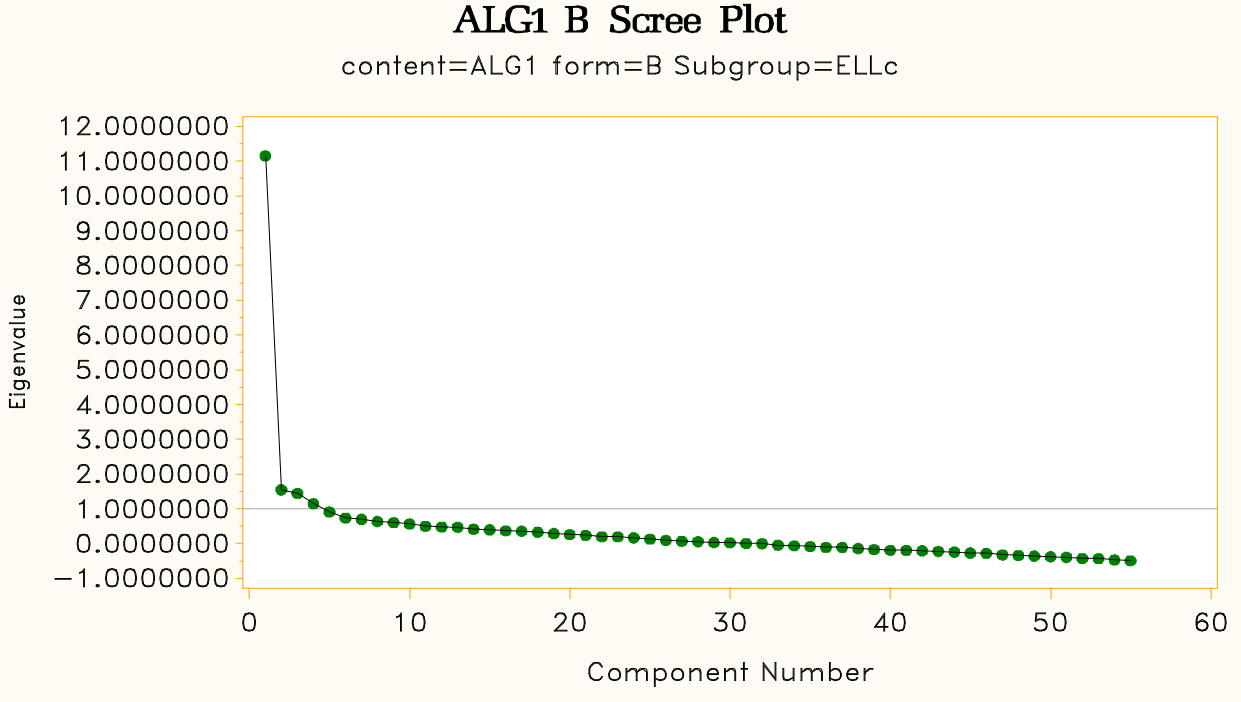


Figure 44. Spring 2014 Algebra I Form B scree plot: Individualized Education Program

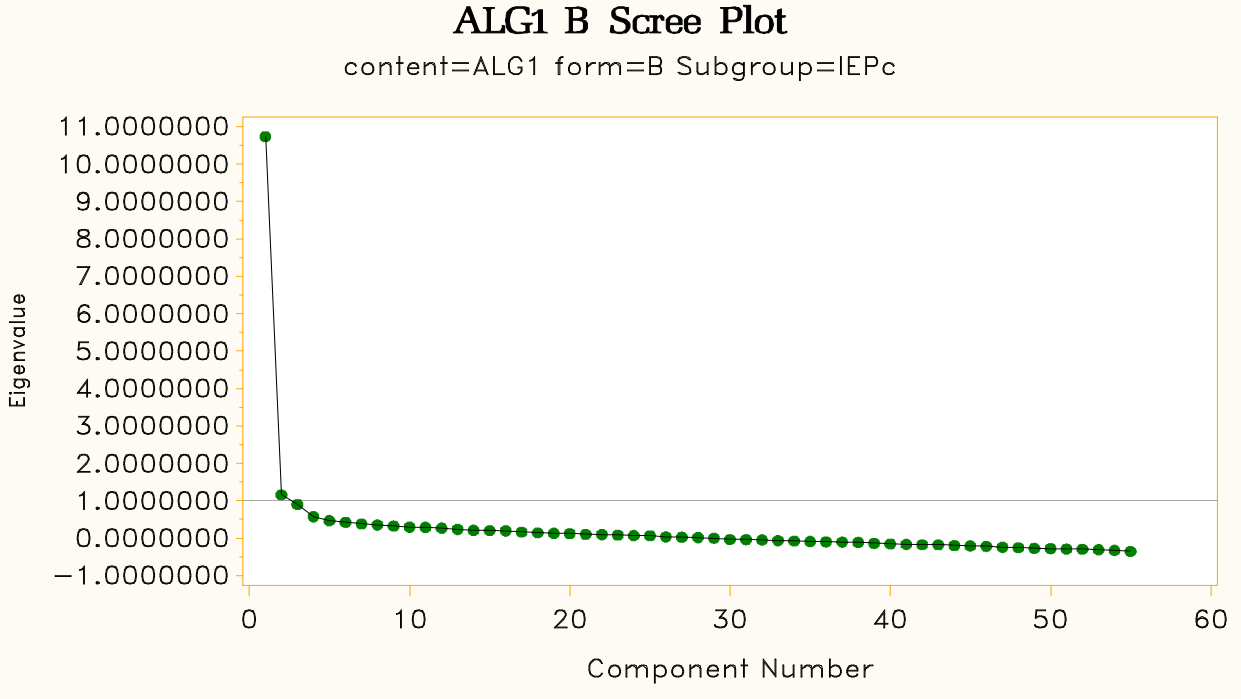


Figure 45. Spring 2014 Algebra II Form A scree plot: All

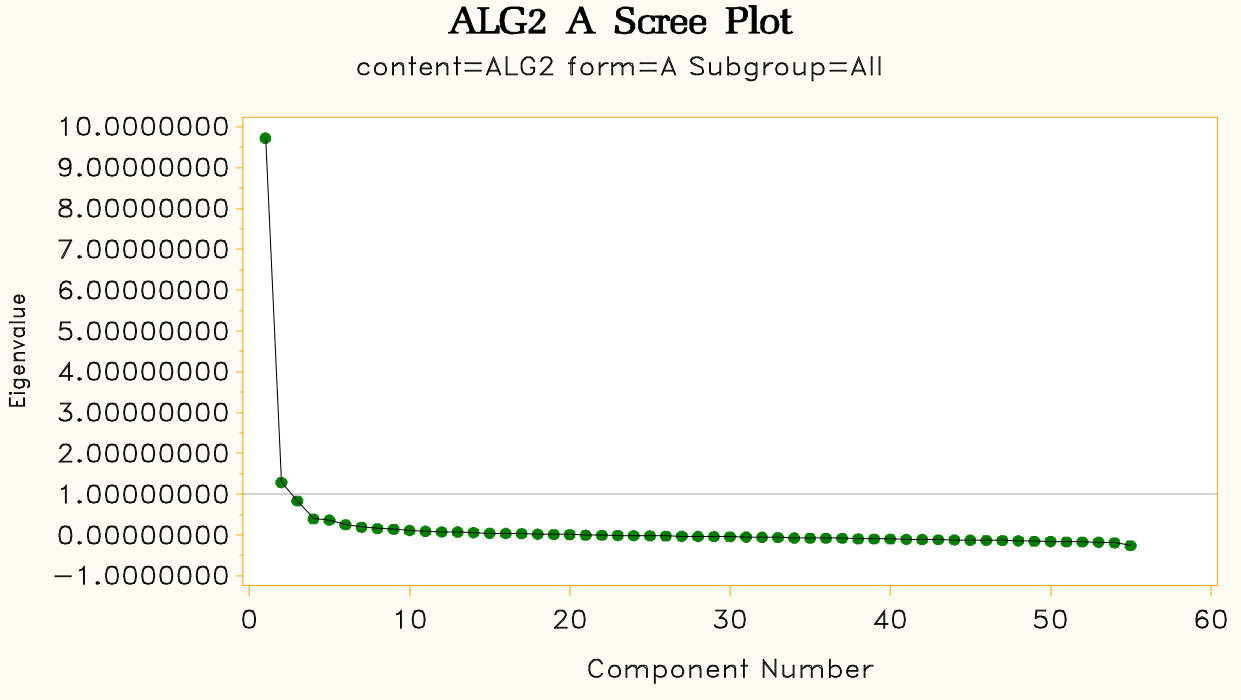


Figure 46. Spring 2014 Algebra II Form A scree plot: Accommodated

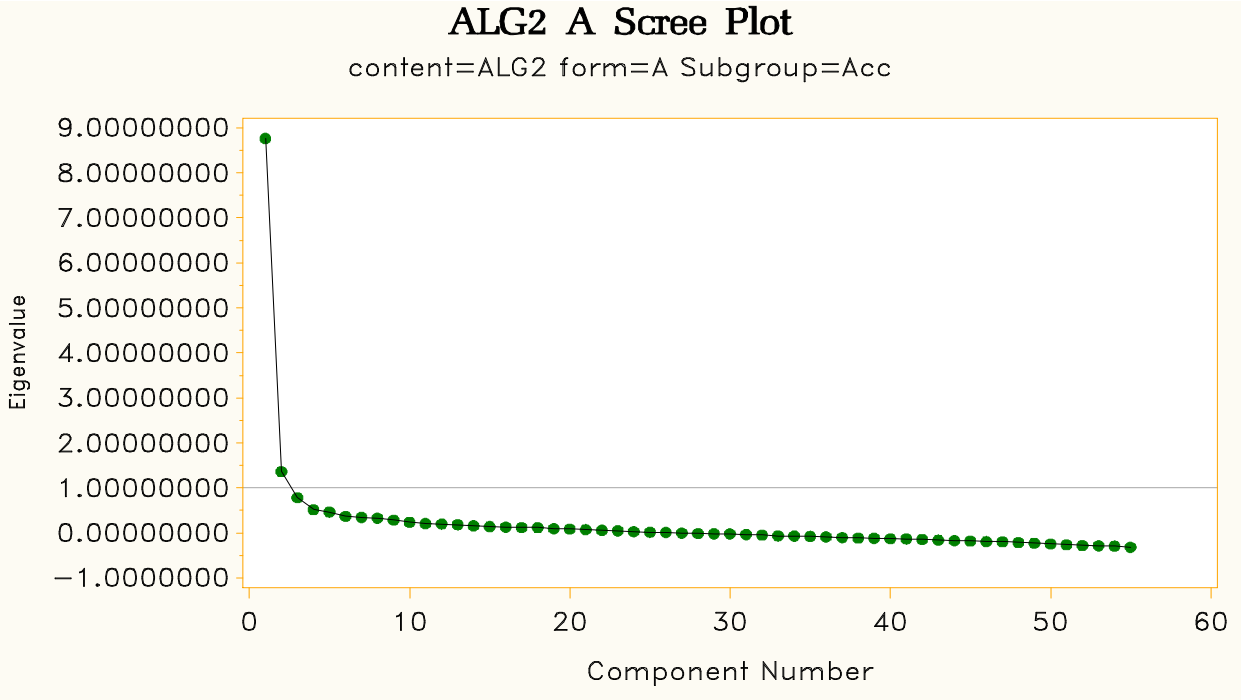


Figure 47. Spring 2014 Algebra II Form A scree plot: English Language Learner

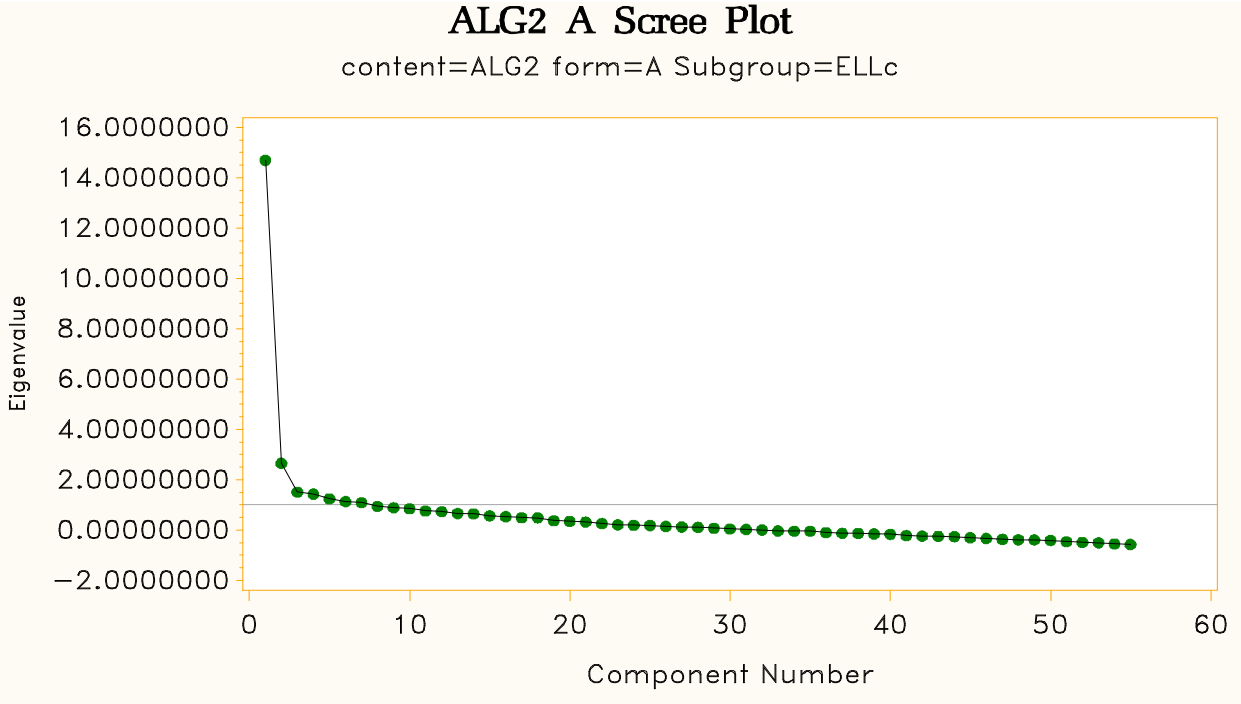


Figure 48. Spring 2014 Algebra II Form A scree plot: Individualized Education Program

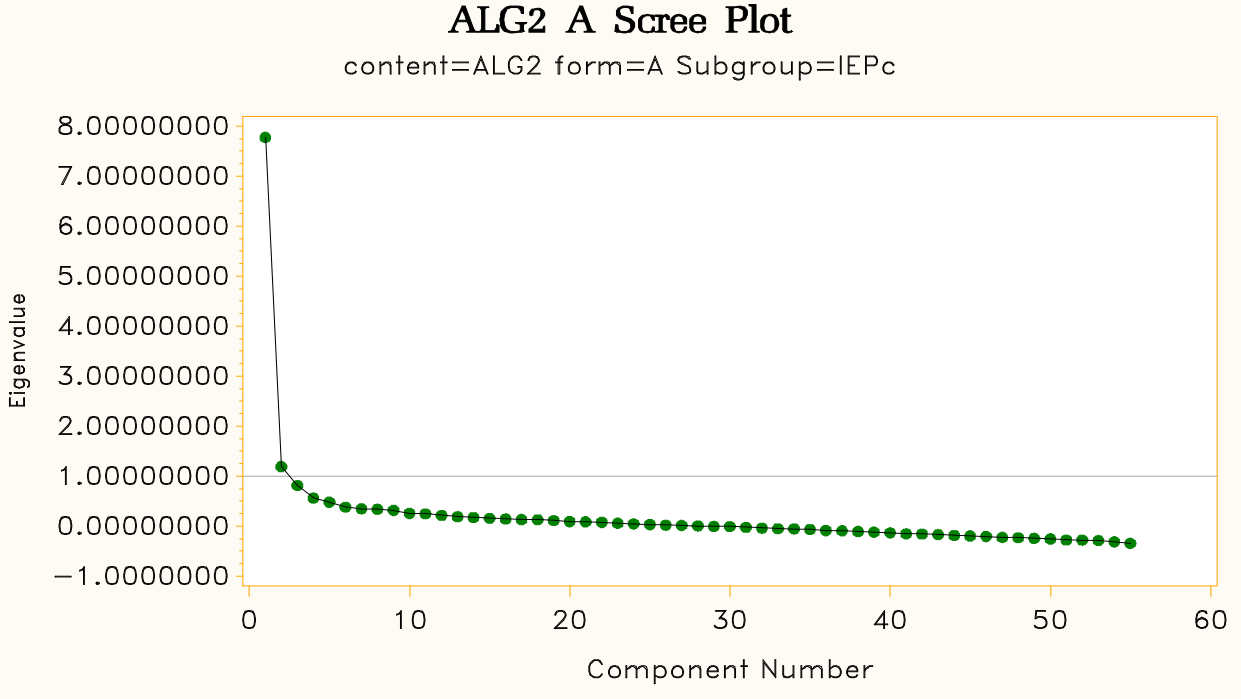


Figure 49. Spring 2014 Algebra II Form B scree plot: All

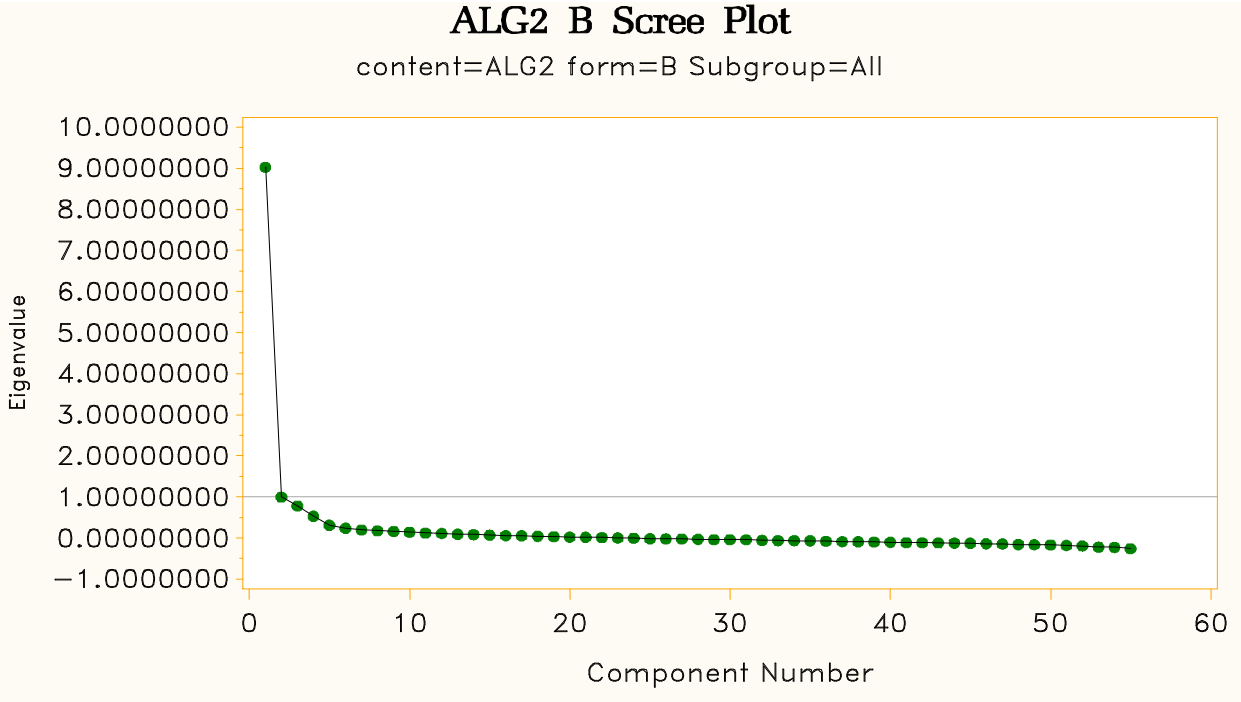


Figure 50. Spring 2014 Algebra II Form B scree plot: Accommodated

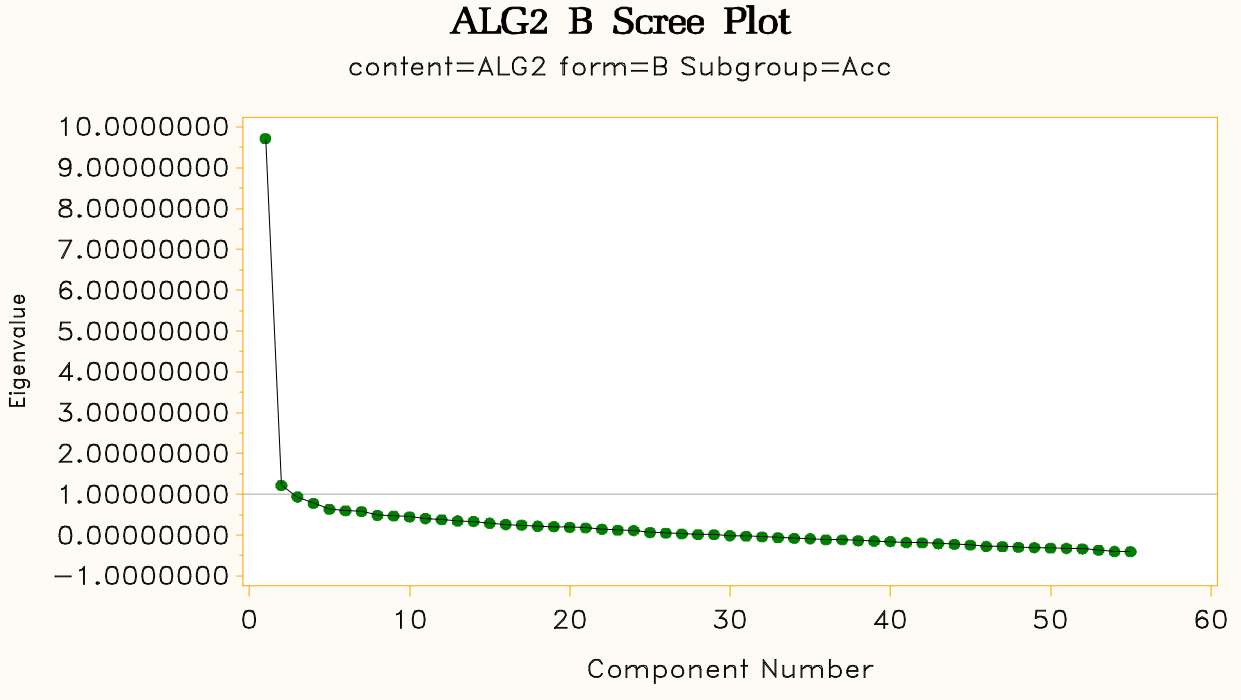


Figure 51. Spring 2014 Algebra II Form B scree plot: English Language Learner

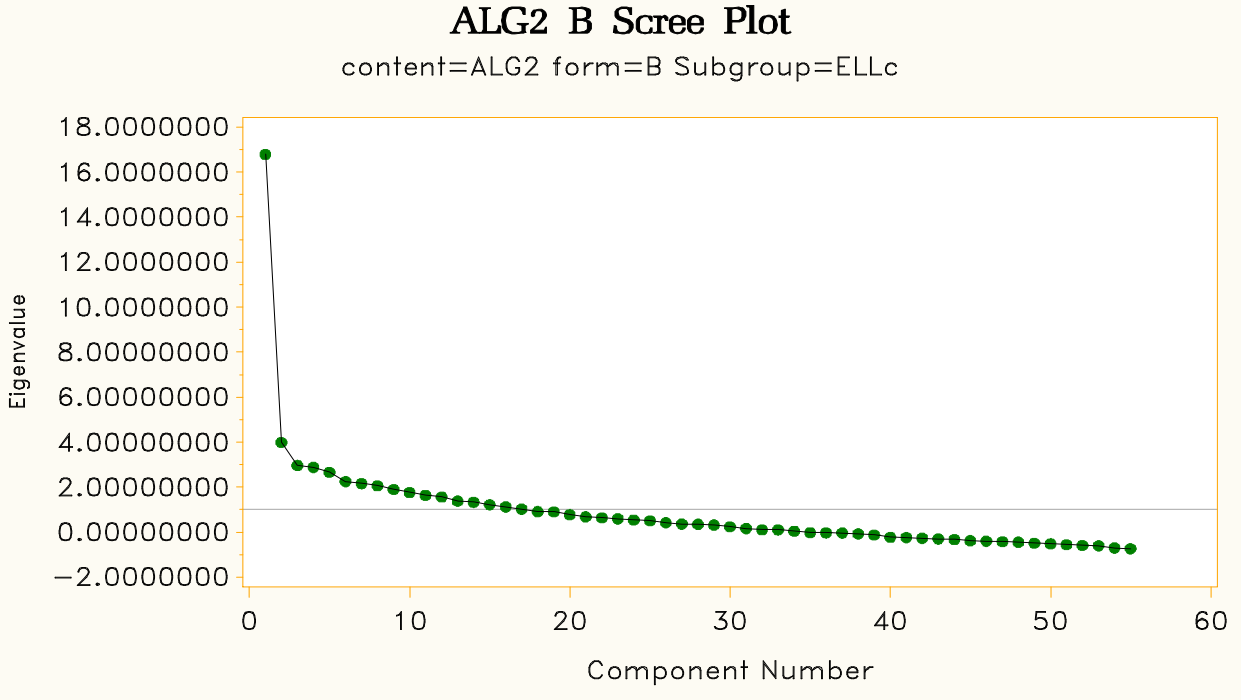


Figure 52. Spring 2014 Algebra II Form B scree plot: Individualized Education Program

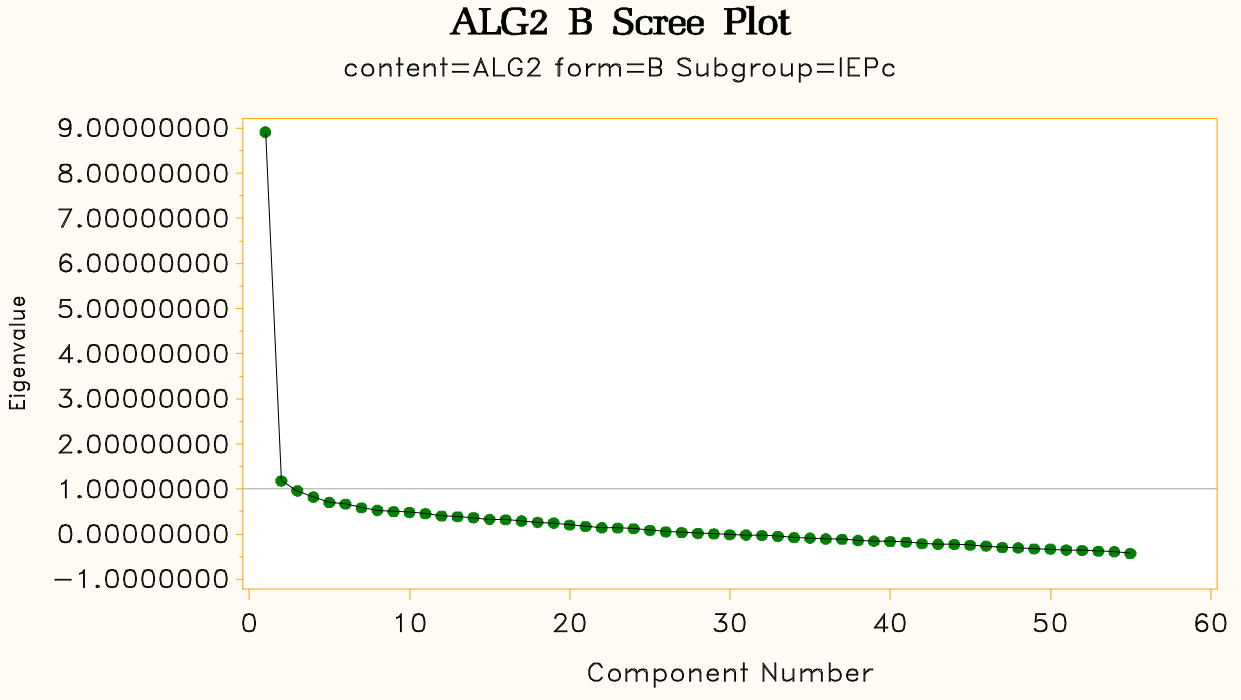


Figure 53. Spring 2014 Biology I Form A scree plot: All

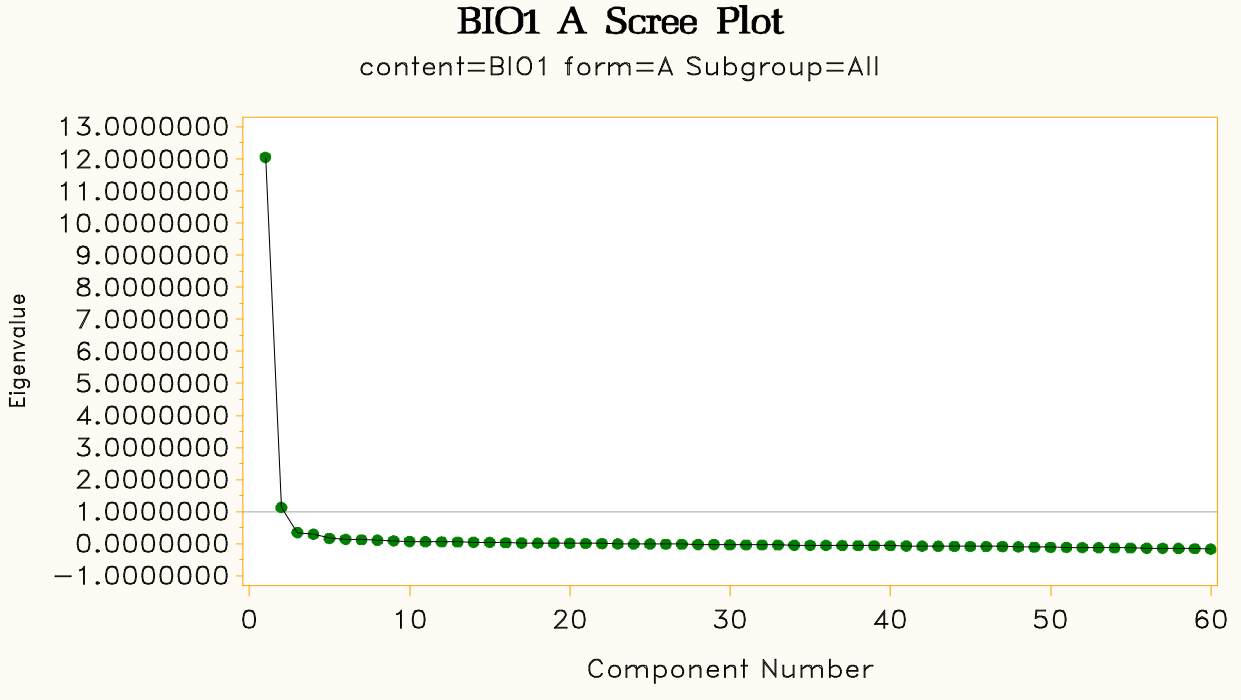


Figure 54. Spring 2014 Biology I Form A scree plot: Accommodated

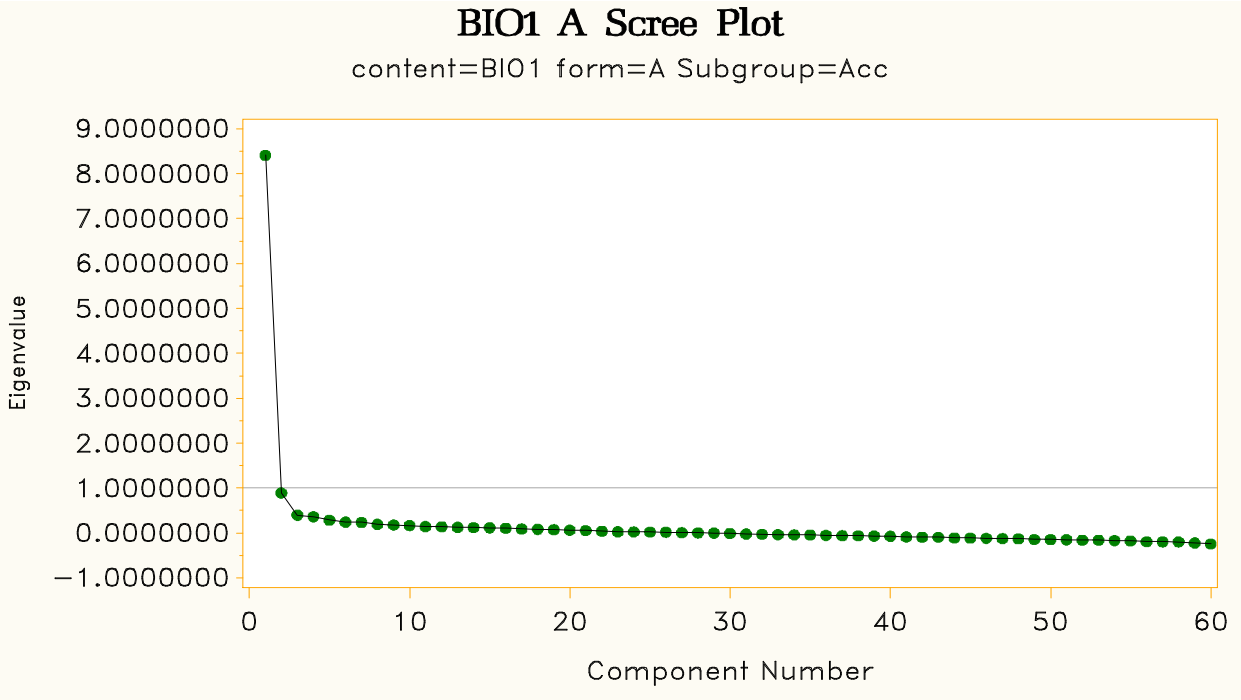


Figure 55. Spring 2014 Biology I Form A scree plot: English Language Learner

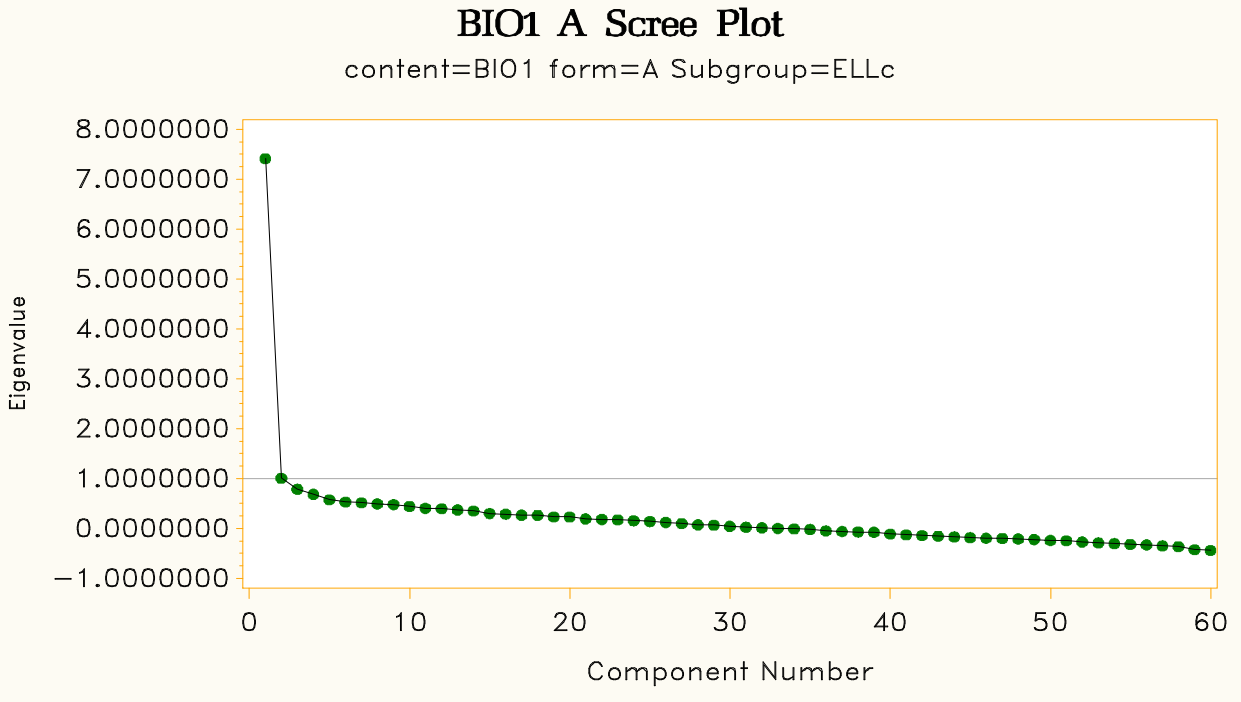


Figure 56. Spring 2014 Biology I Form A scree plot: Individualized Education Program

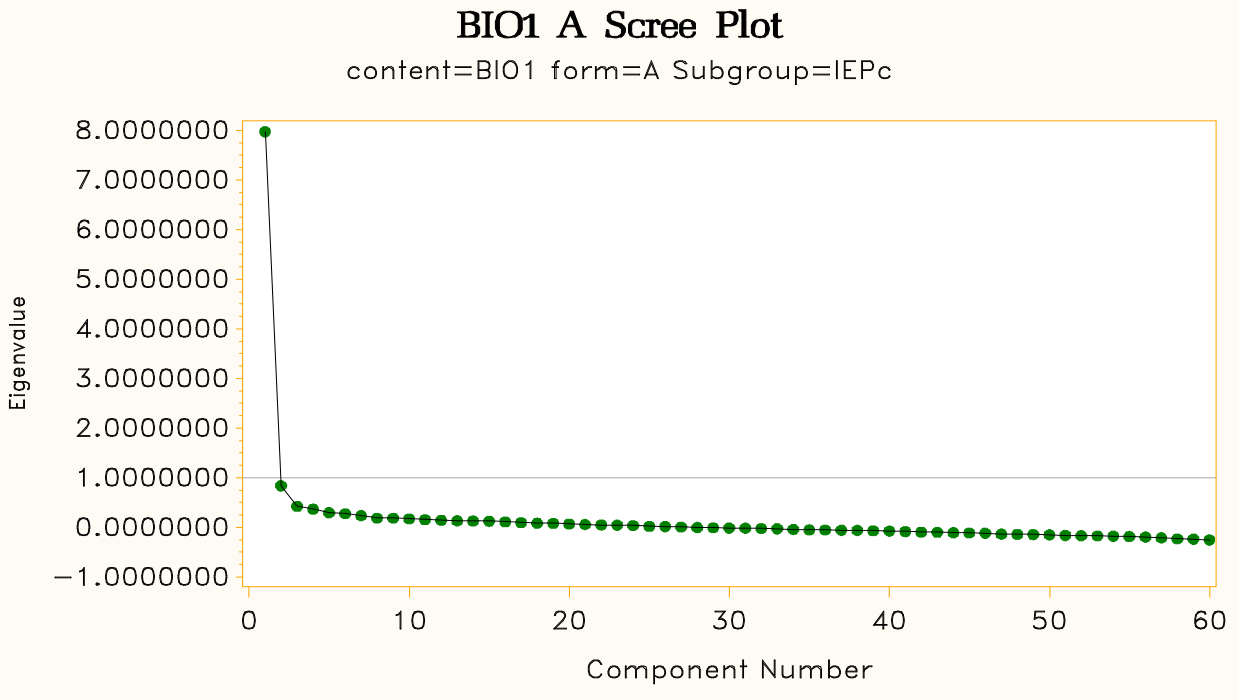


Figure 57. Spring 2014 Biology I Form B scree plot: All

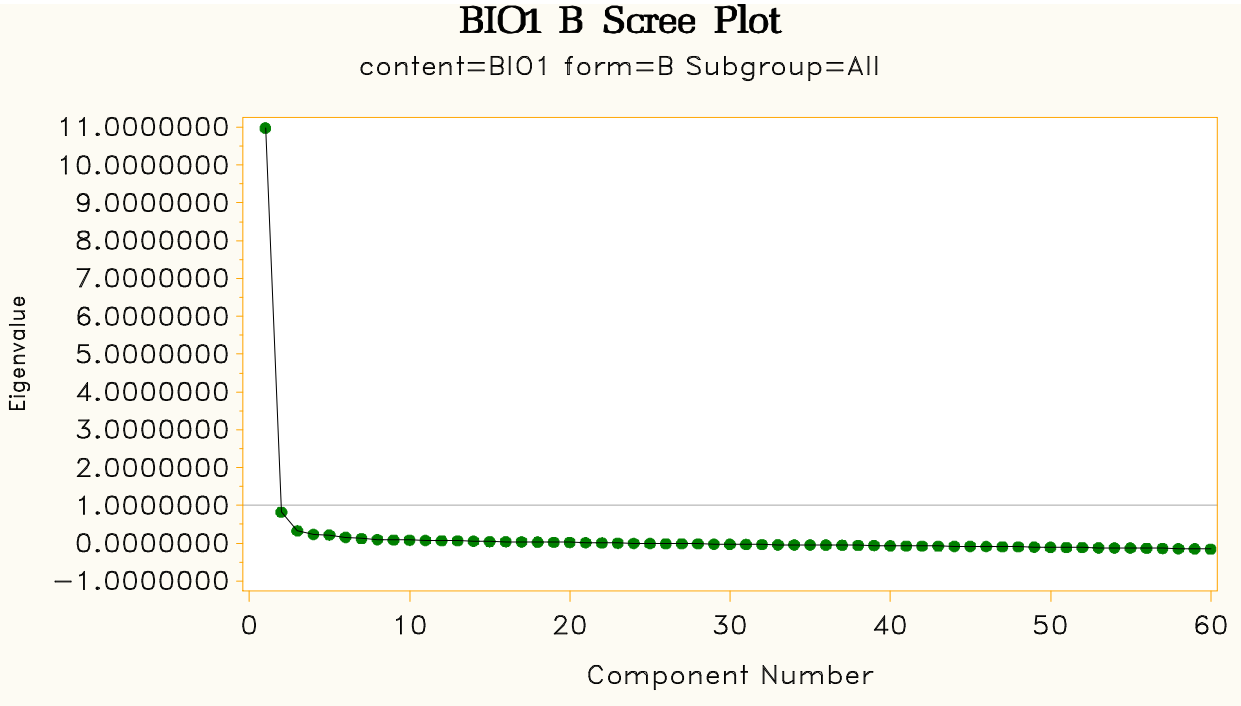


Figure 58. Spring 2014 Biology I Form B scree plot: Accommodated

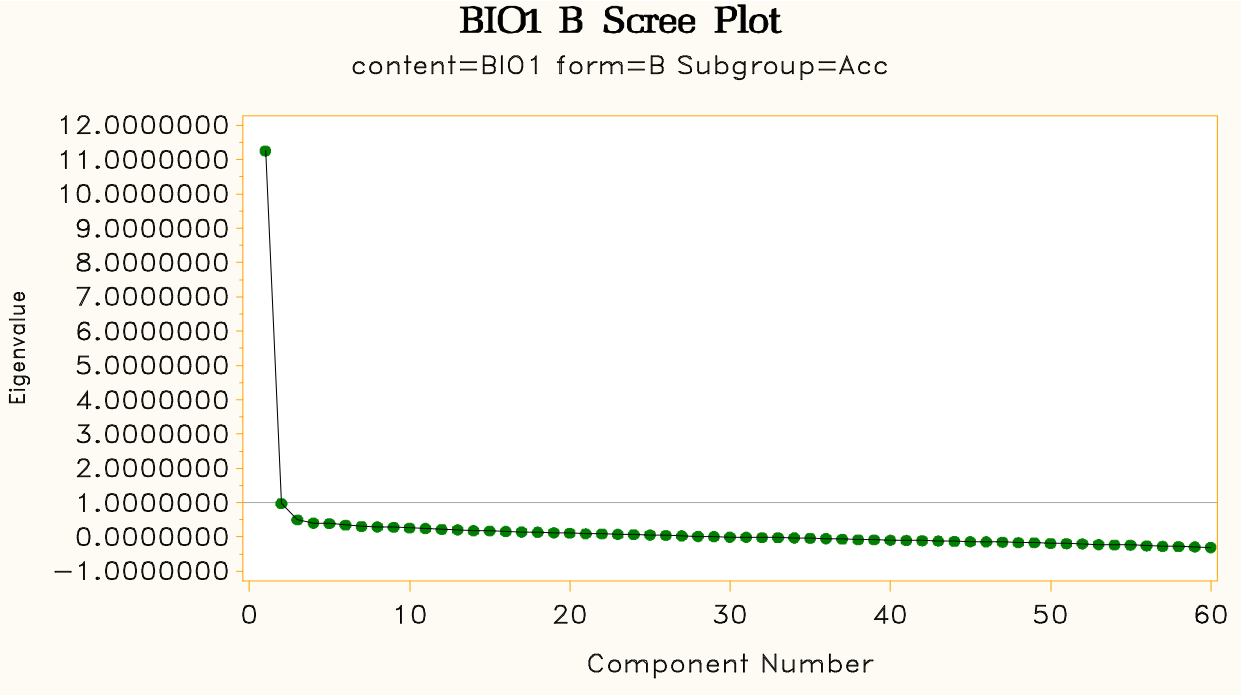


Figure 59. Spring 2014 Biology I Form B scree plot: English Language Learner

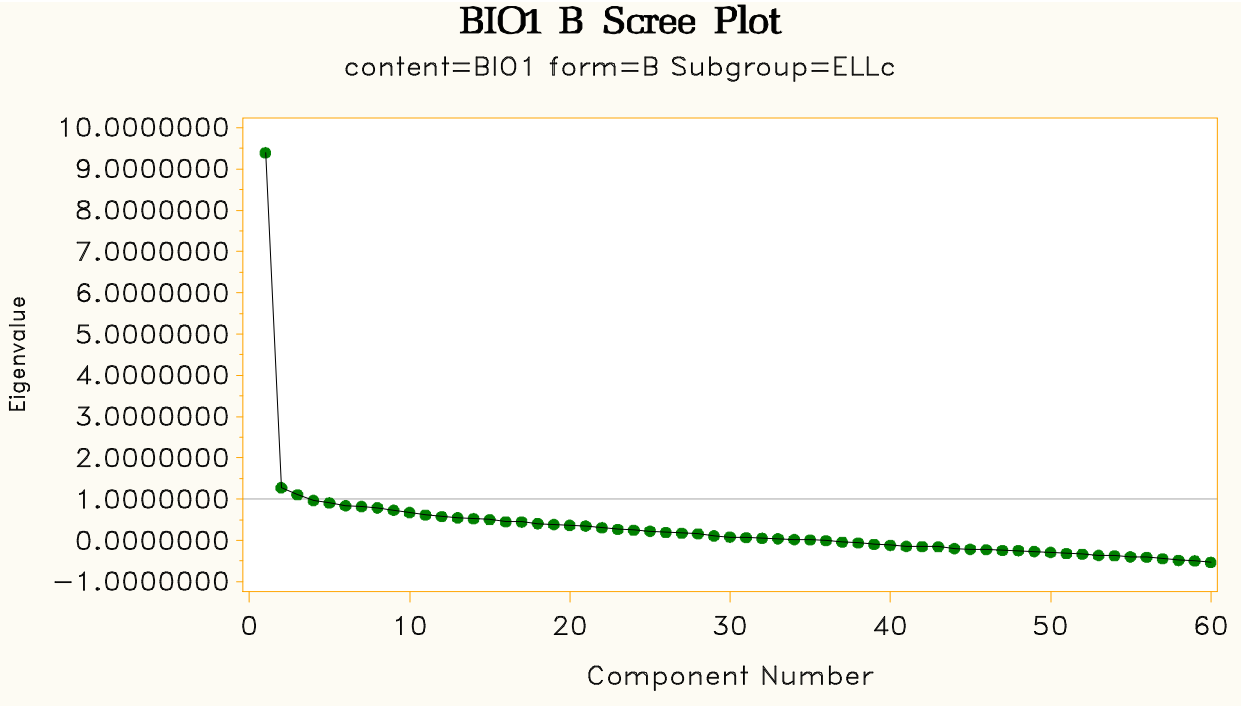


Figure 60. Spring 2014 Biology I Form B scree plot: Individualized Education Program

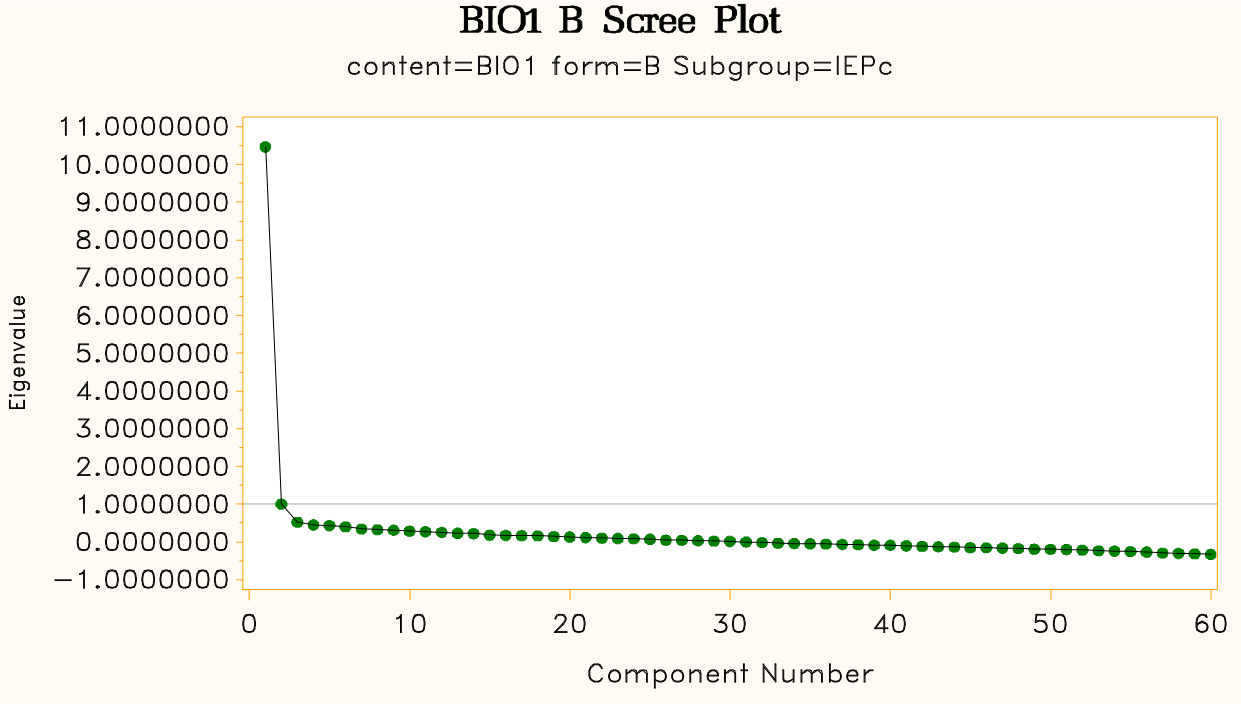


Figure 61. Spring 2014 English II Form AA scree plot: All

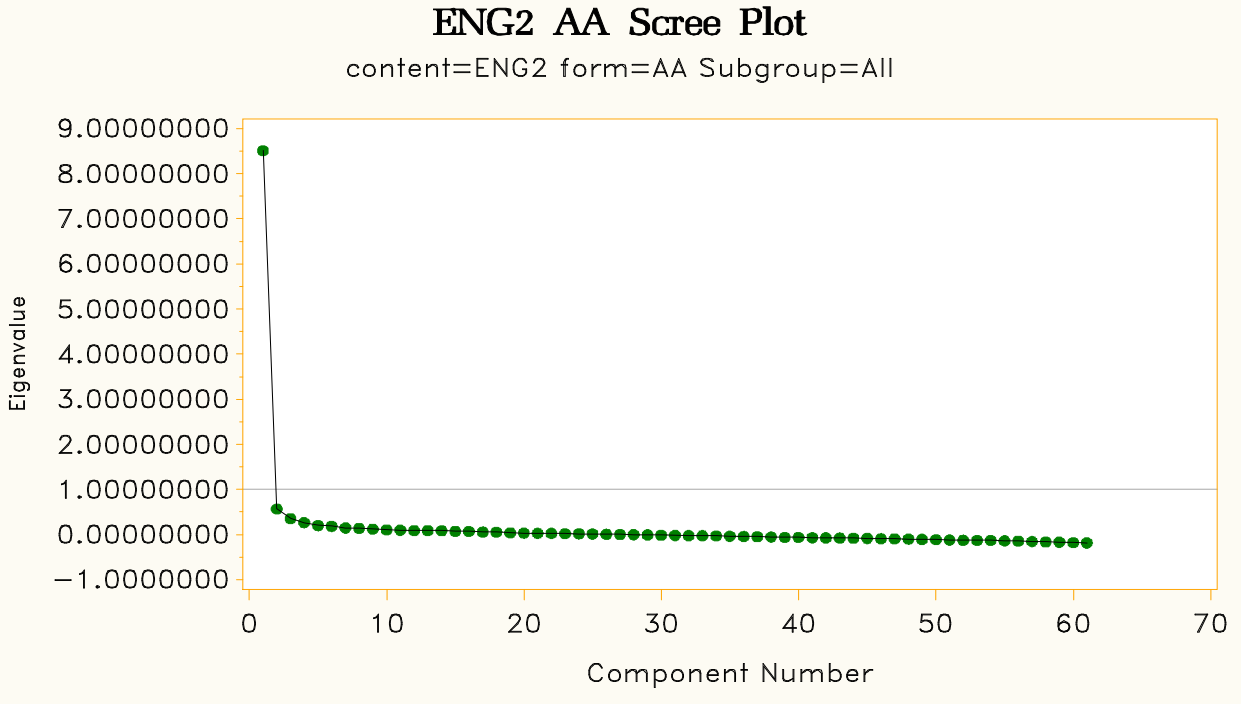


Figure 62. Spring 2014 English II Form AA scree plot: Accommodated

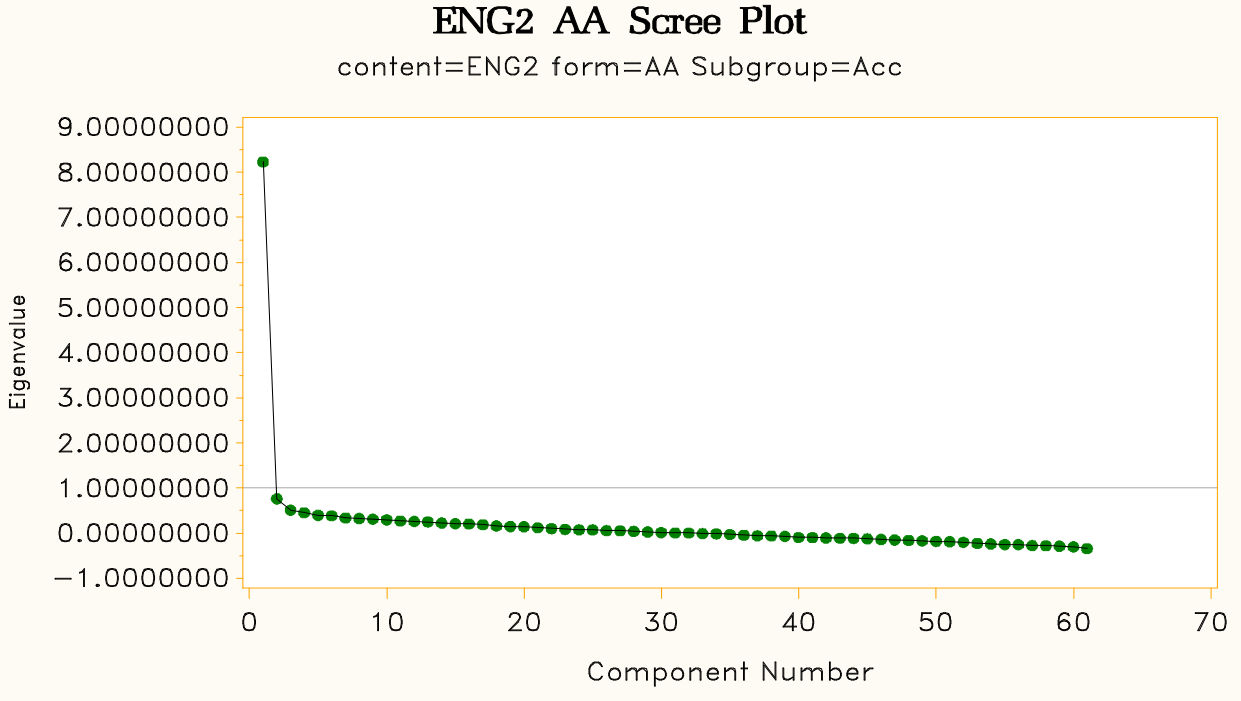


Figure 63. Spring 2014 English II Form AA scree plot: English Language Learner

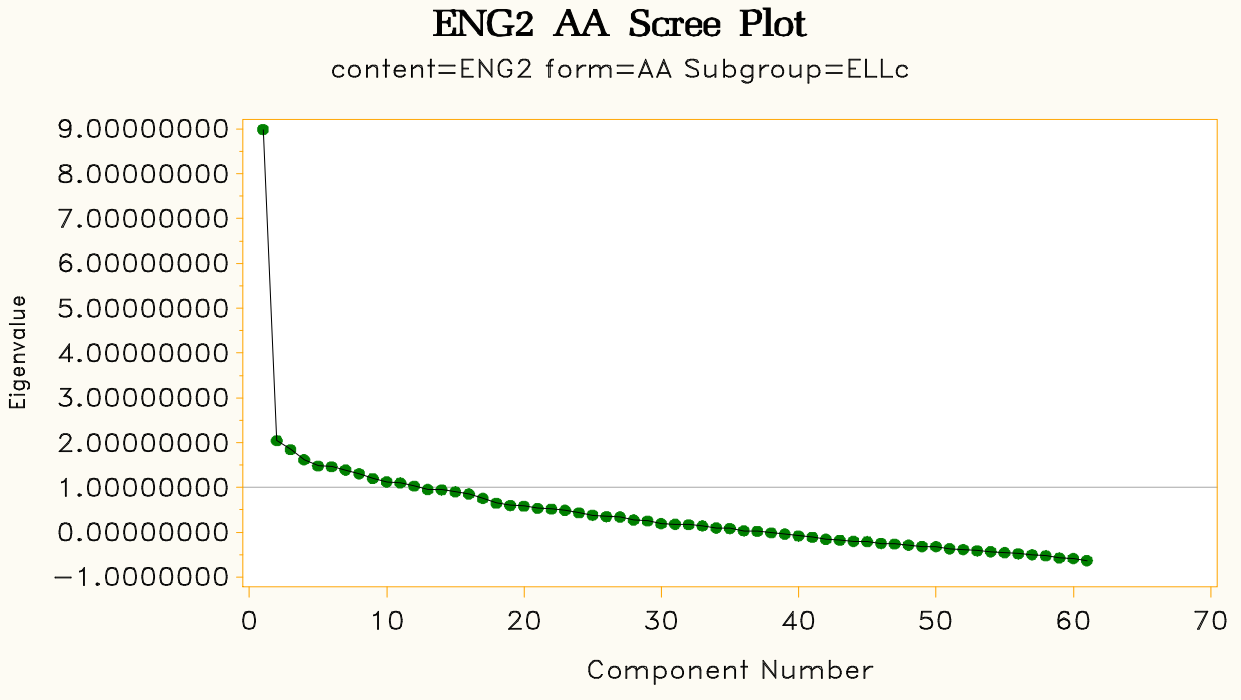


Figure 64. Spring 2014 English II Form AA scree plot: Individualized Education Program

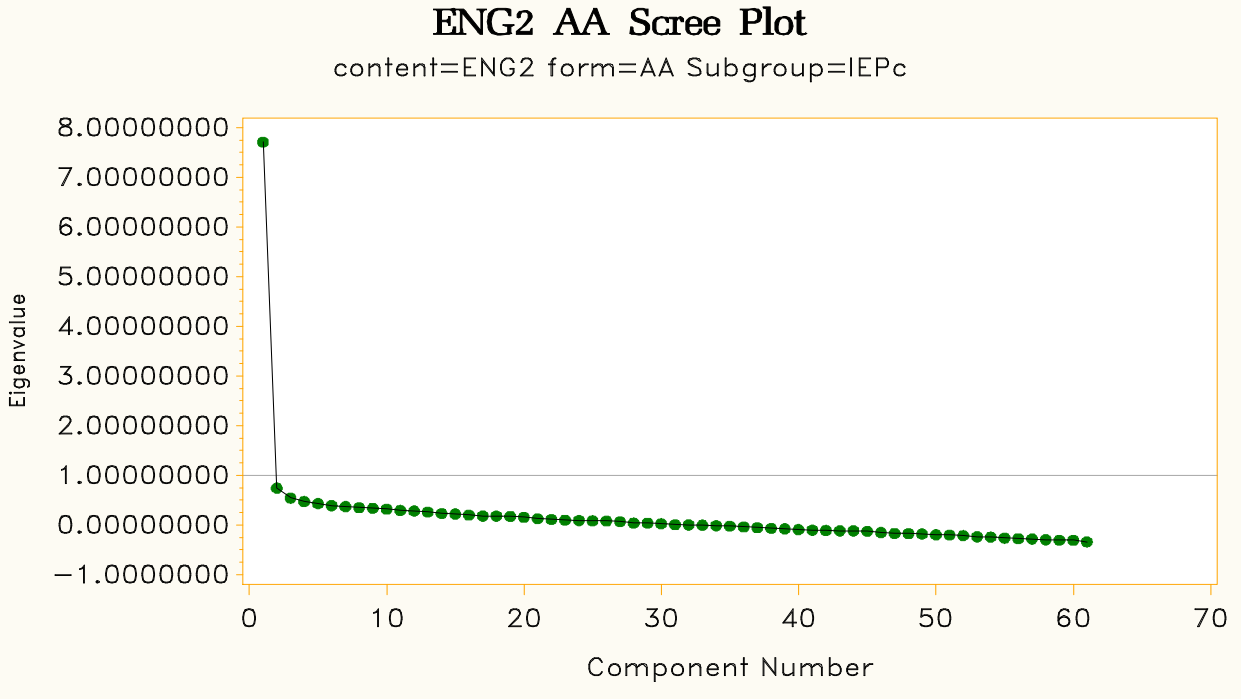


Figure 65. Spring 2014 English II Form AB scree plot: All

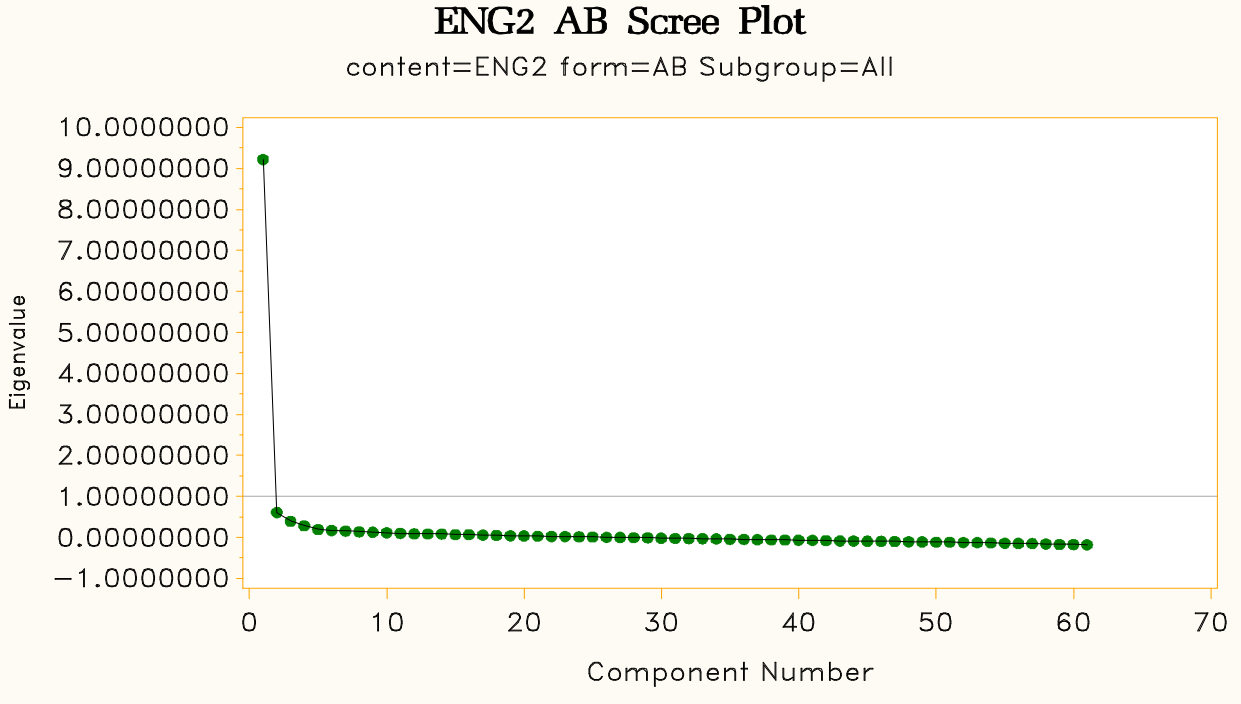


Figure 66. Spring 2014 English II Form AB scree plot: Accommodated

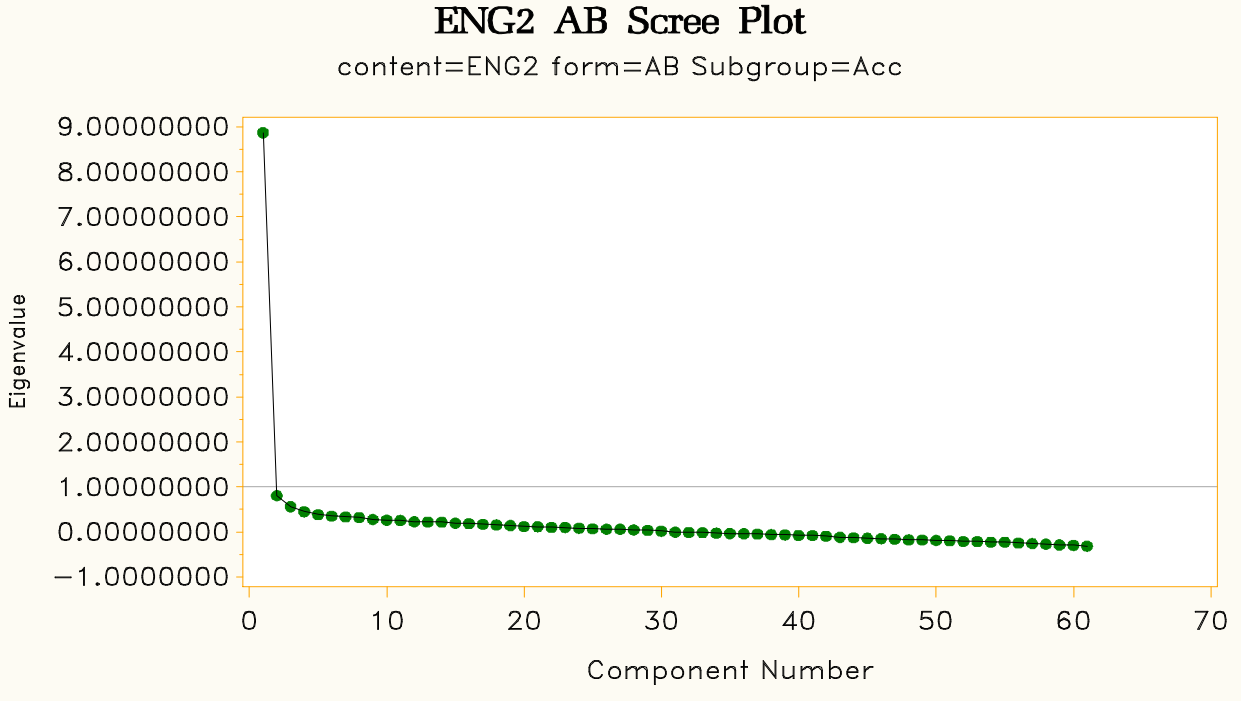


Figure 67. Spring 2014 English II Form AB scree plot: English Language Learner

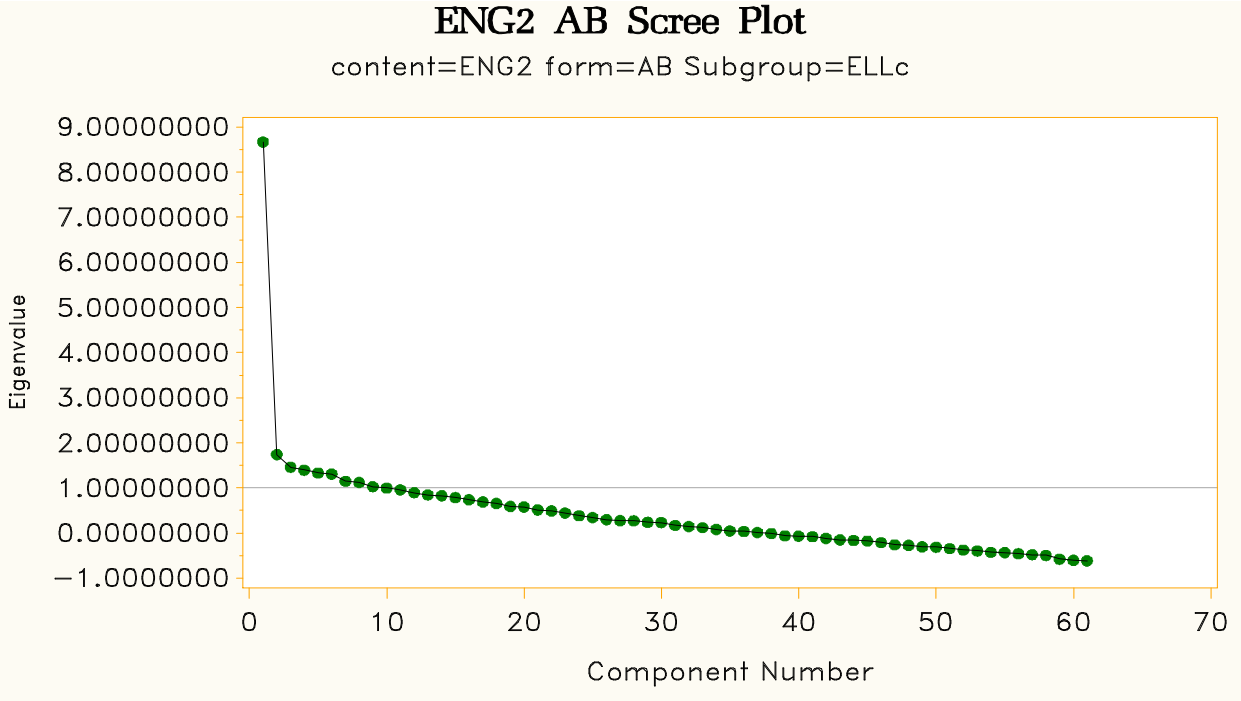


Figure 68. Spring 2014 English II Form AB scree plot: Individualized Education Program

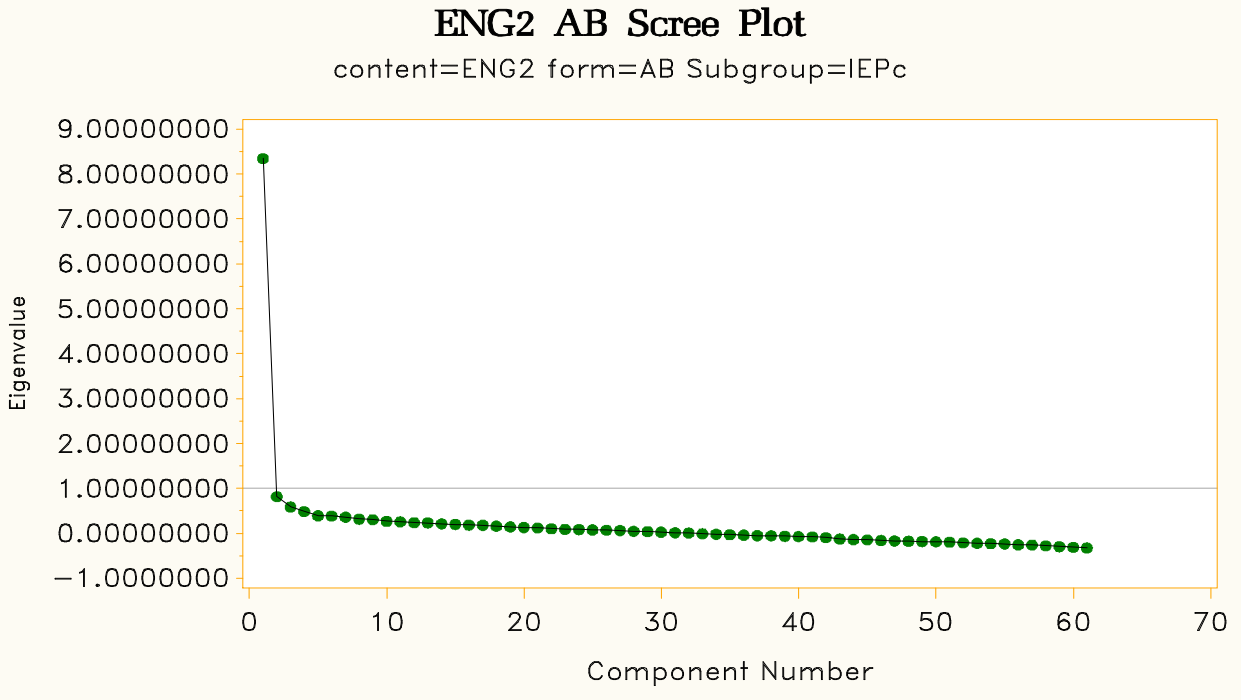


Figure 69. Spring 2014 English II Form BA scree plot: All

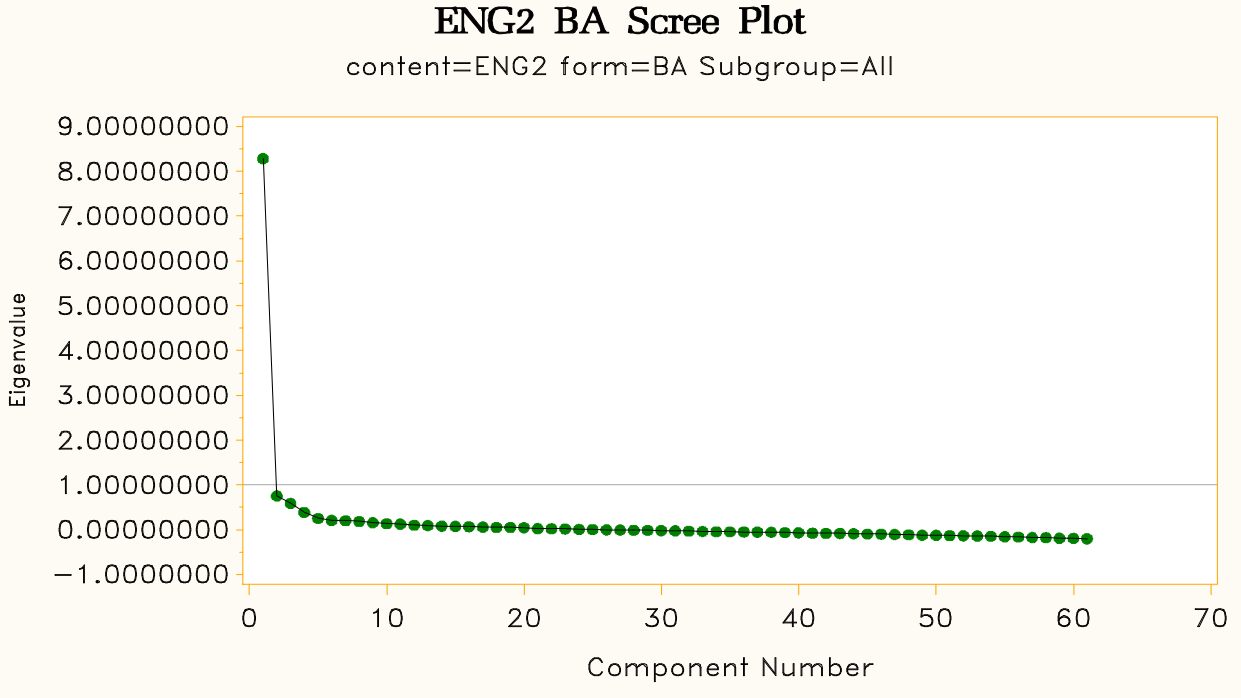


Figure 70. Spring 2014 English II Form BA scree plot: Accommodated

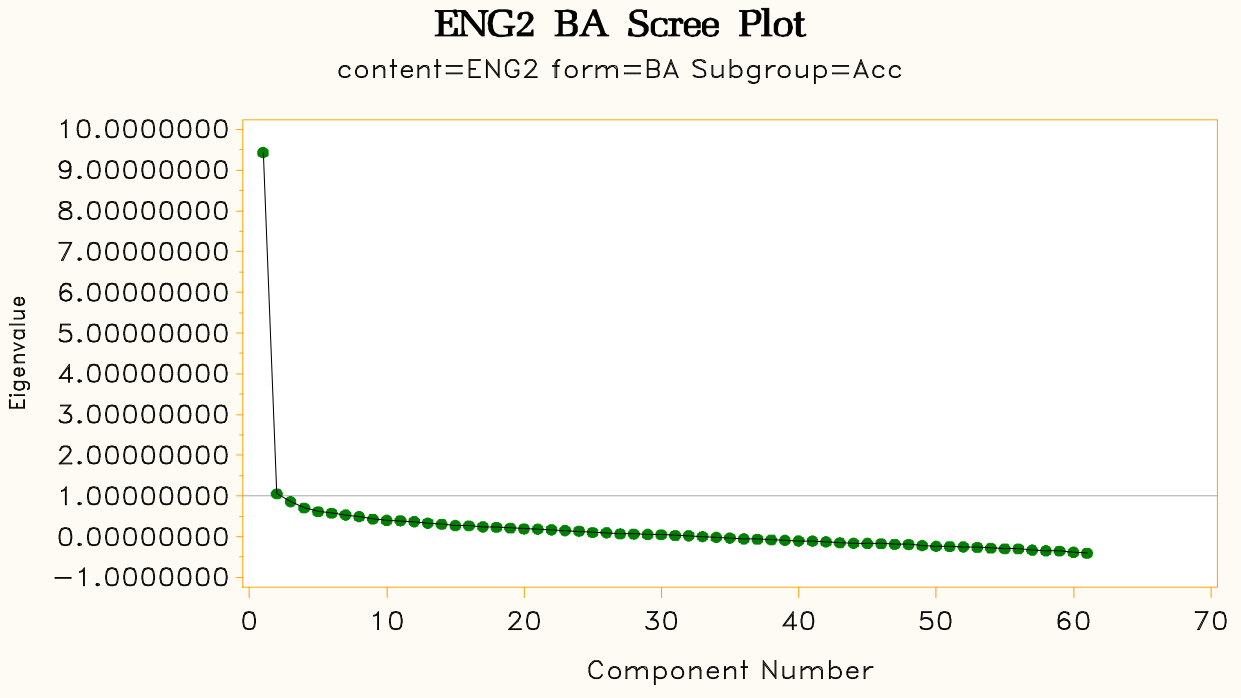


Figure 71. Spring 2014 English II Form BA scree plot: English Language Learner

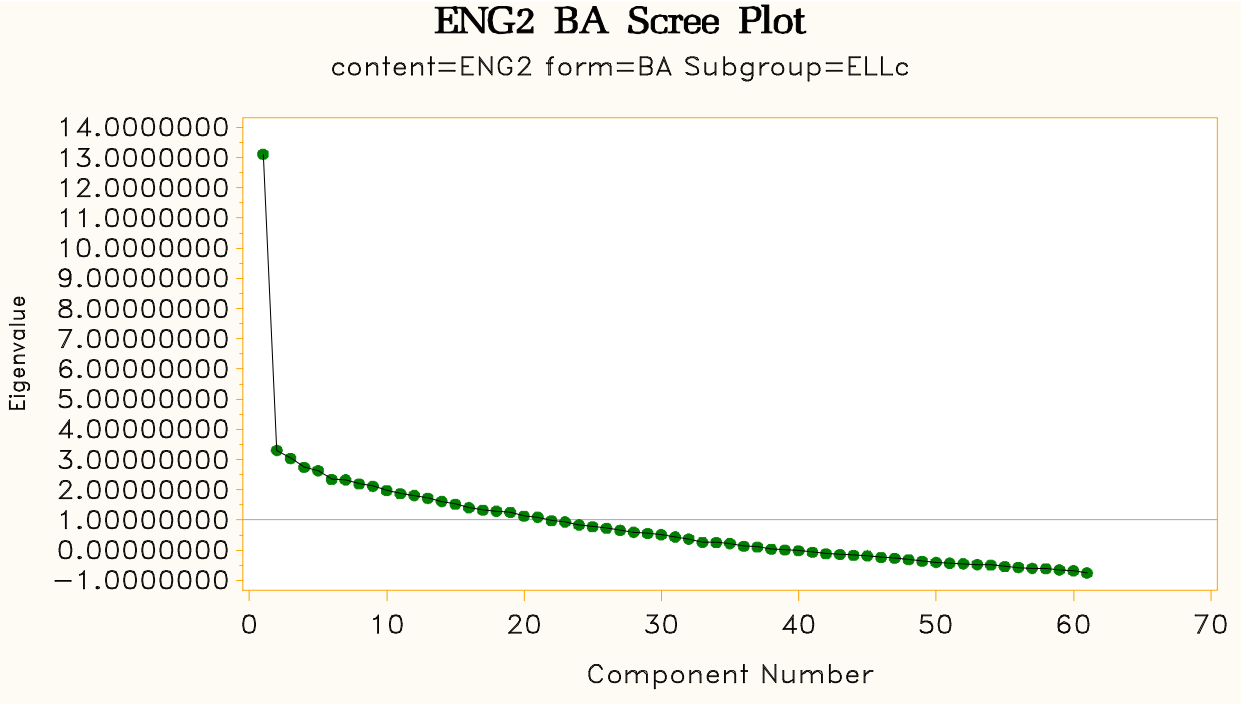


Figure 72. Spring 2014 English II Form BA scree plot: Individualized Education Program

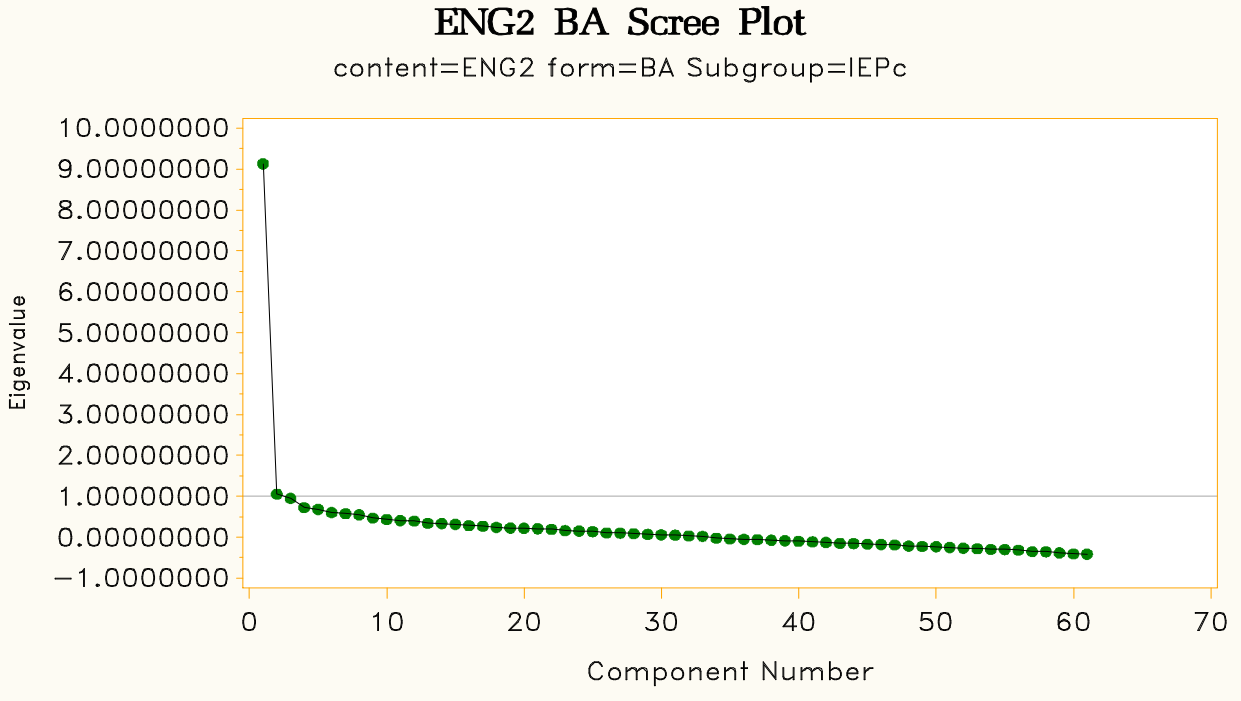


Figure 73. Spring 2014 English II Form BB scree plot: All

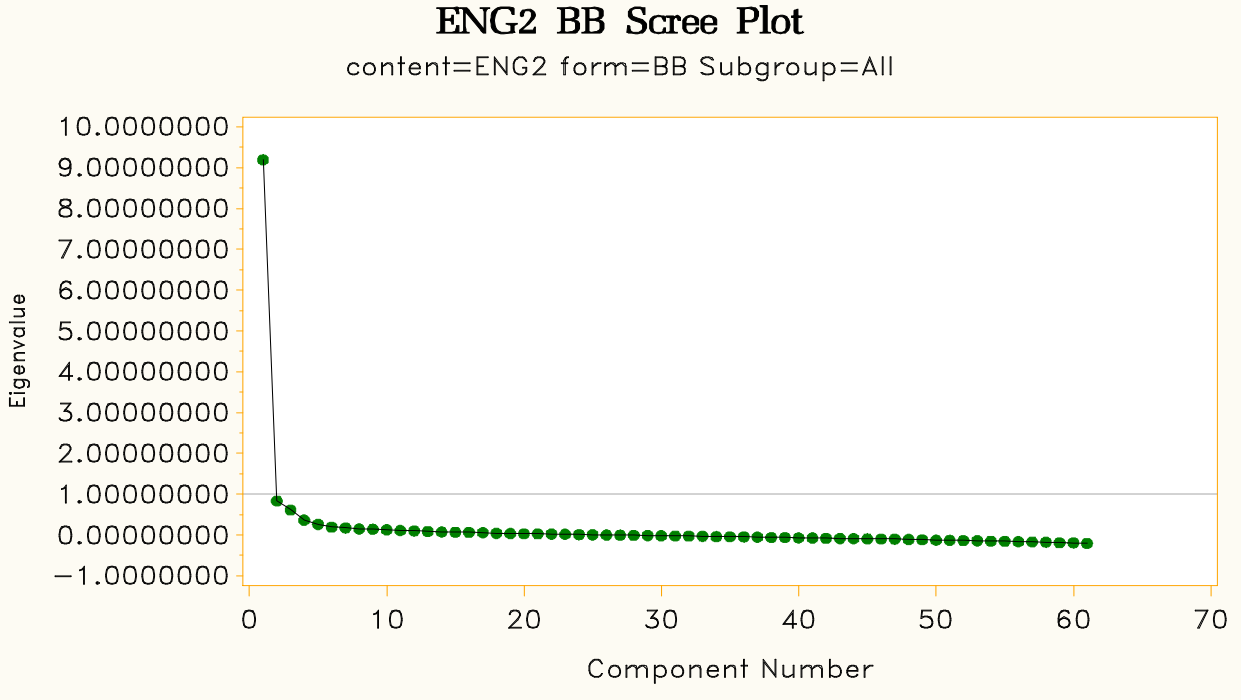


Figure 74. Spring 2014 English II Form BB scree plot: Accommodated

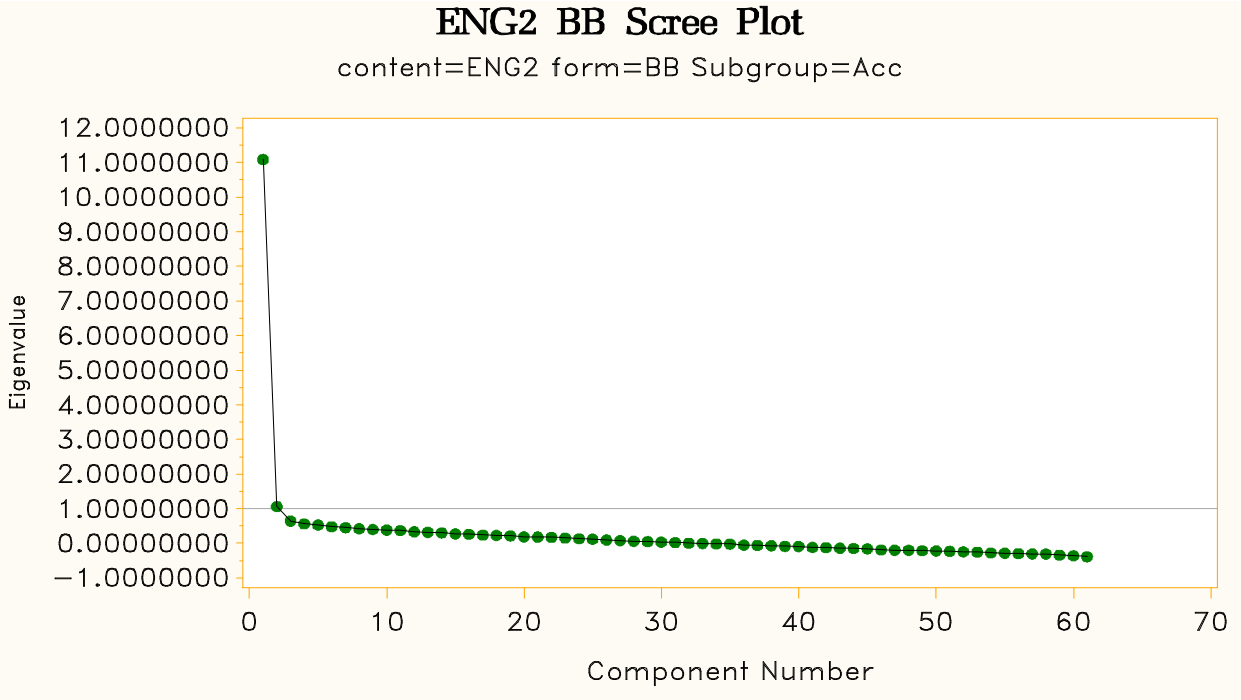


Figure 75. Spring 2014 English II Form BB scree plot: English Language Learner

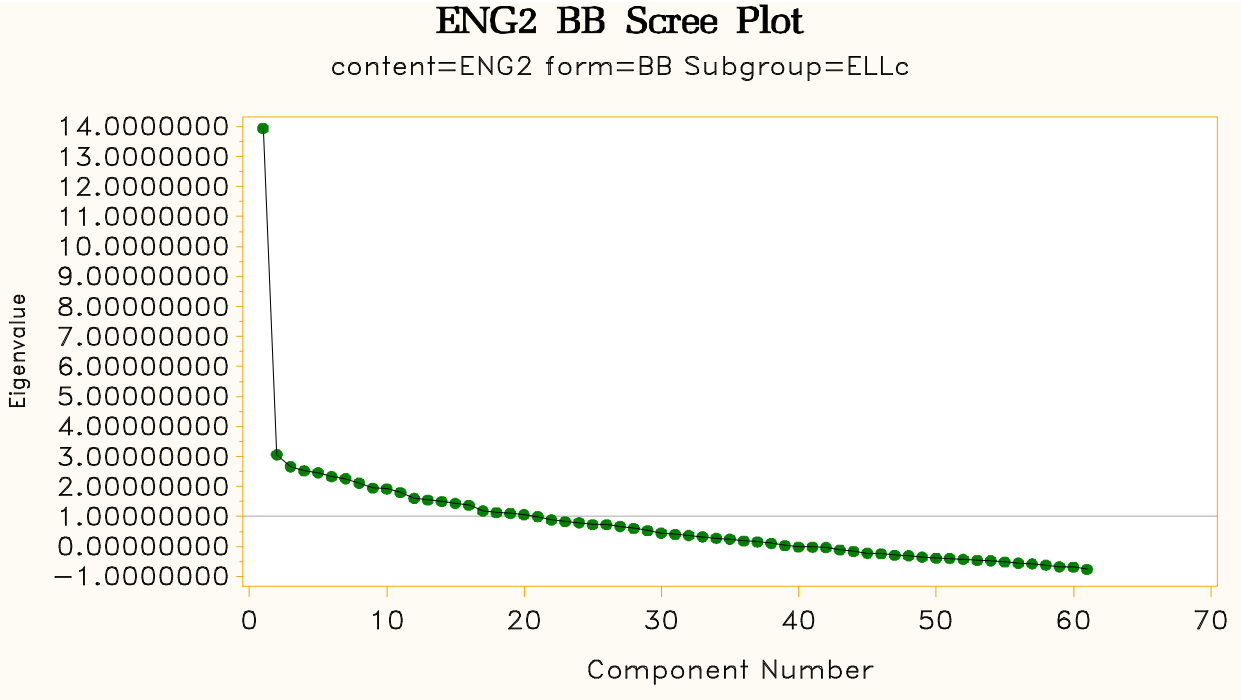


Figure 76. Spring 2014 English II Form BB scree plot: Individualized Education Program

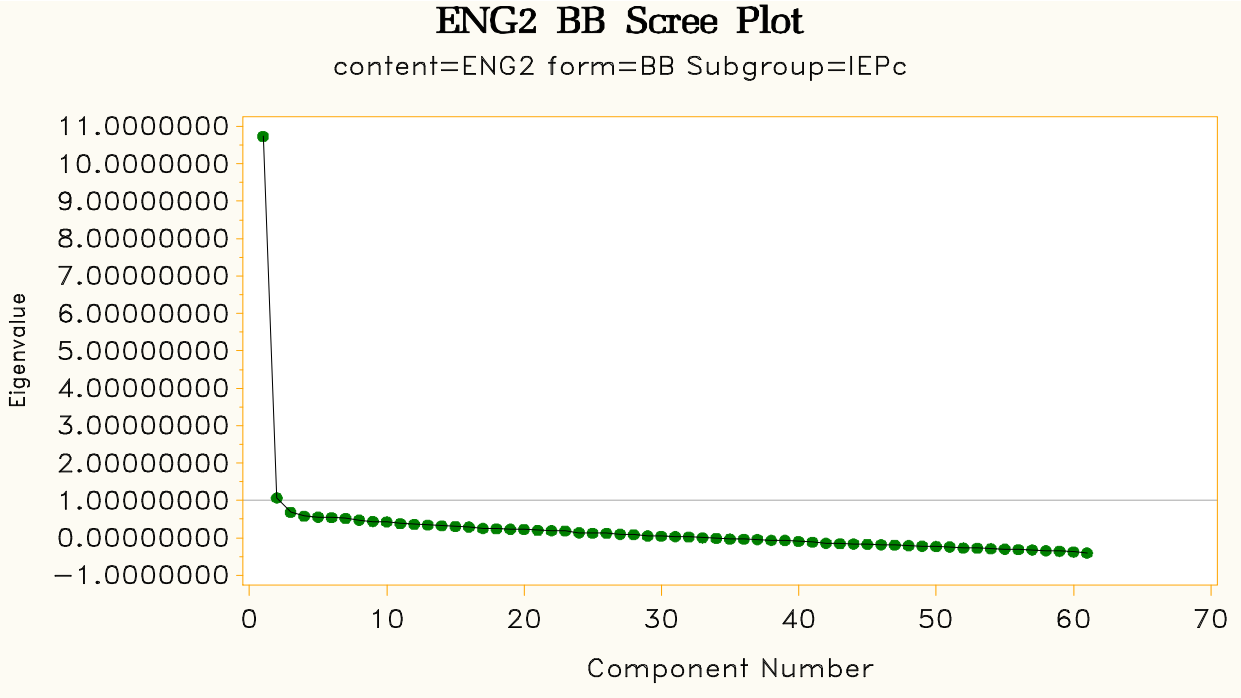


Figure 77. Spring 2014 English III Form AA scree plot: All

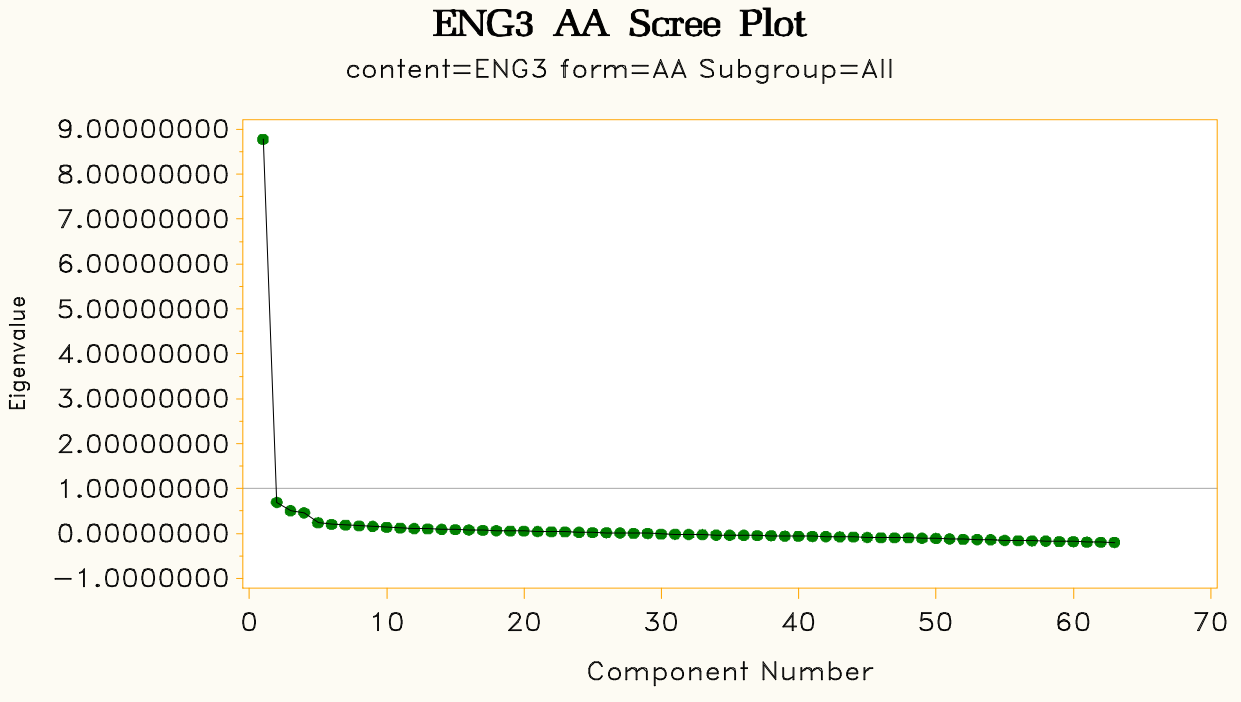


Figure 78. Spring 2014 English III Form AA scree plot: Accommodated

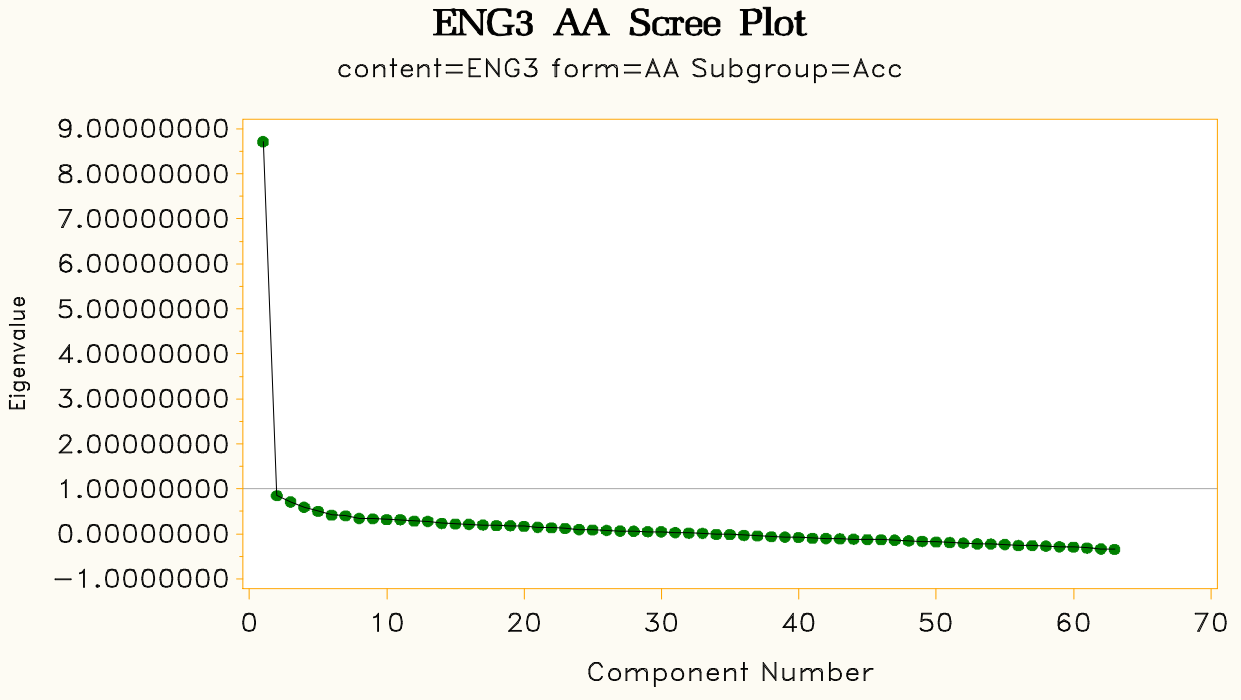


Figure 79. Spring 2014 English III Form AA scree plot: English Language Learner

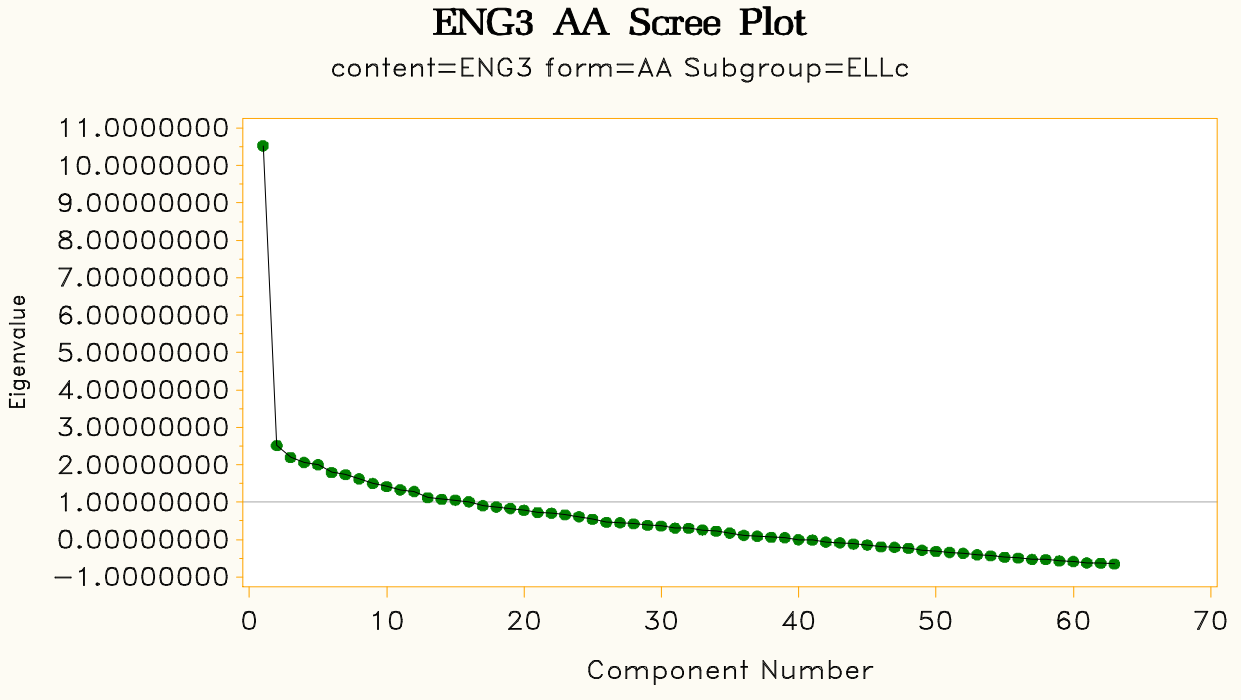


Figure 80. Spring 2014 English III Form AA scree plot: Individualized Education Program

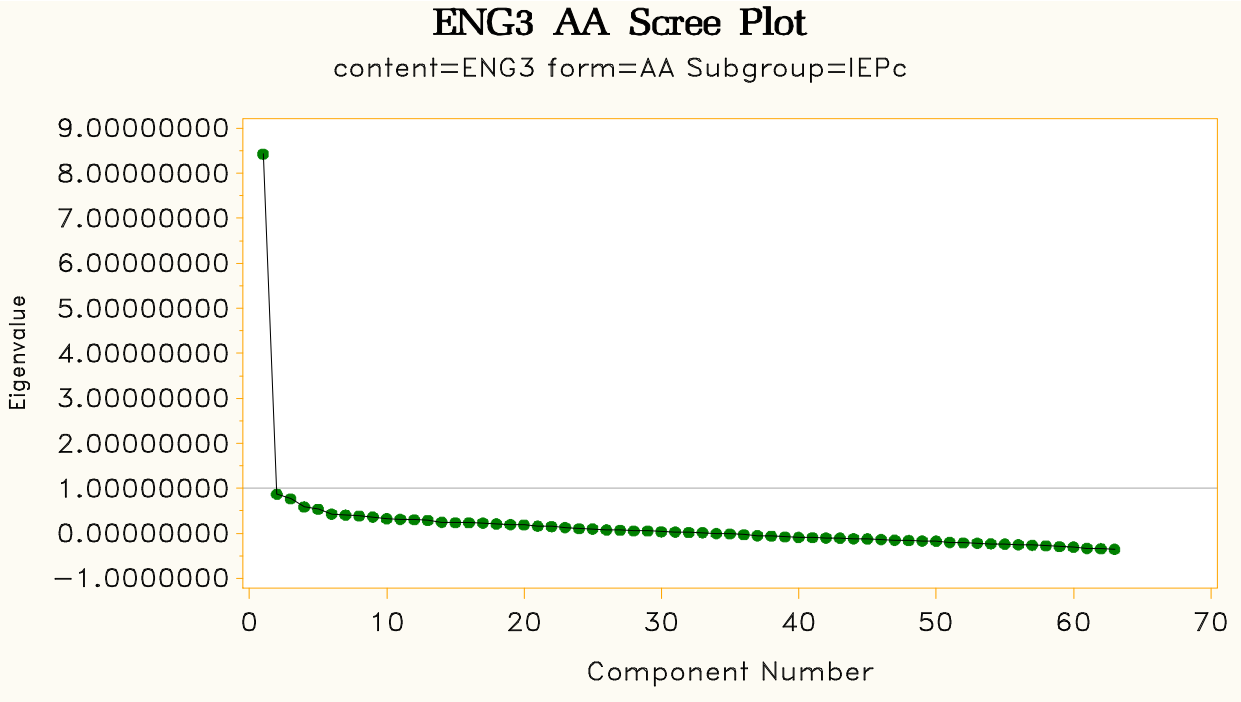


Figure 81. Spring 2014 English III Form AB scree plot: All

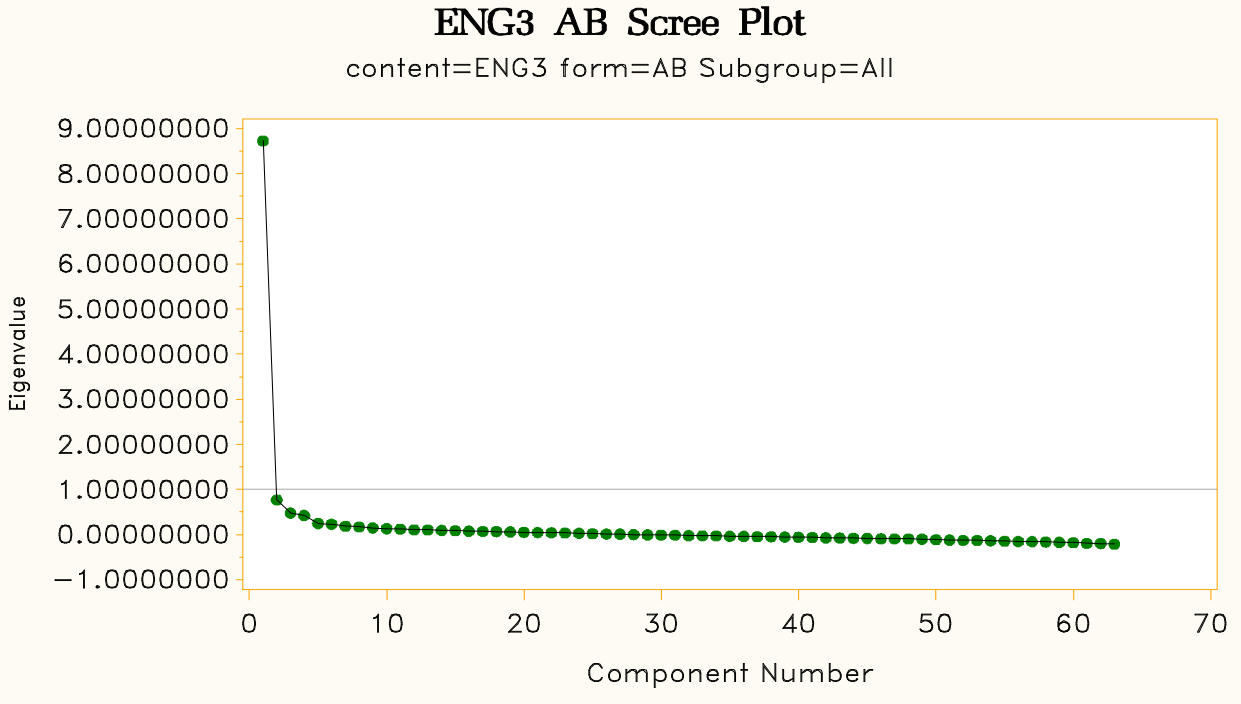


Figure 82. Spring 2014 English III Form AB scree plot: Accommodated

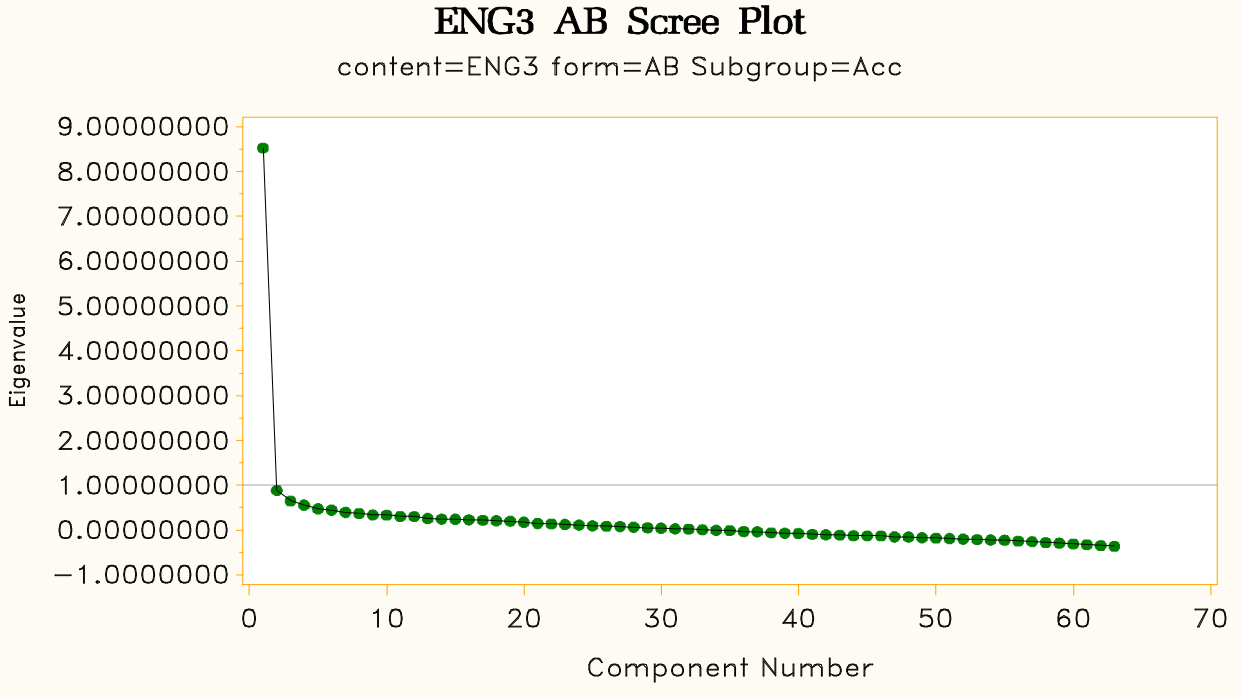


Figure 83. Spring 2014 English III Form AB scree plot: English Language Learner

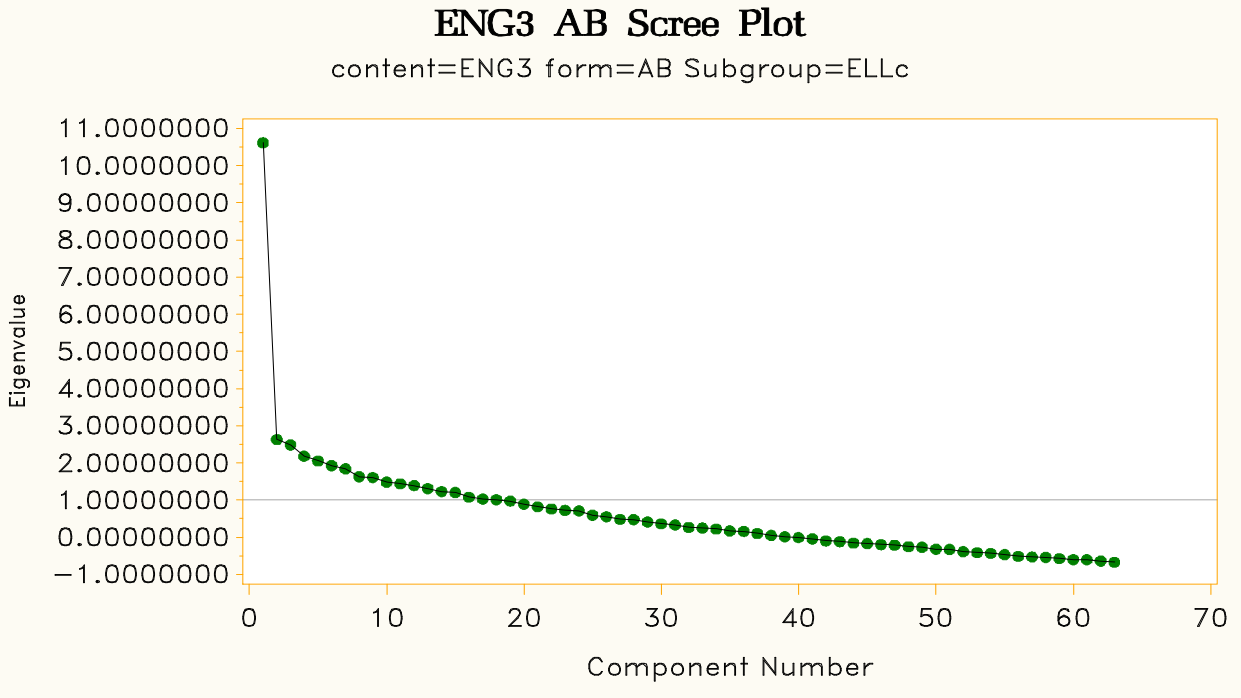


Figure 84. Spring 2014 English III Form AB scree plot: Individualized Education Program

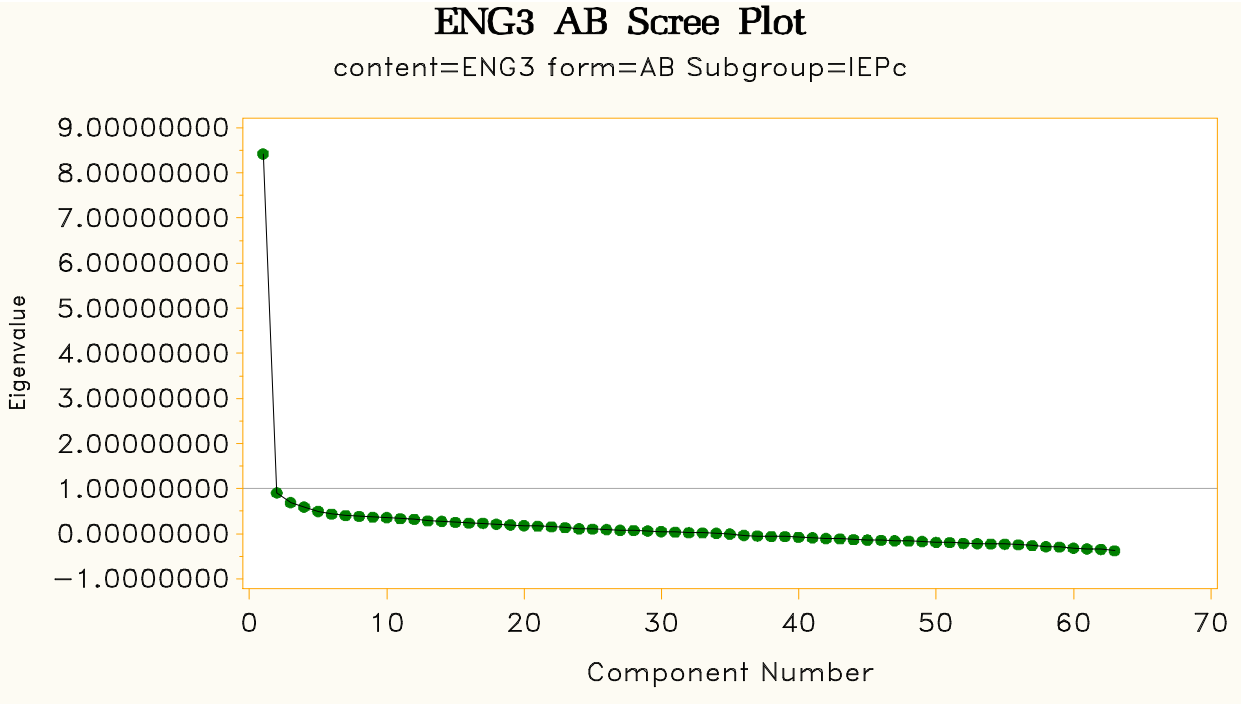


Figure 85. Spring 2014 English III Form BA scree plot: All

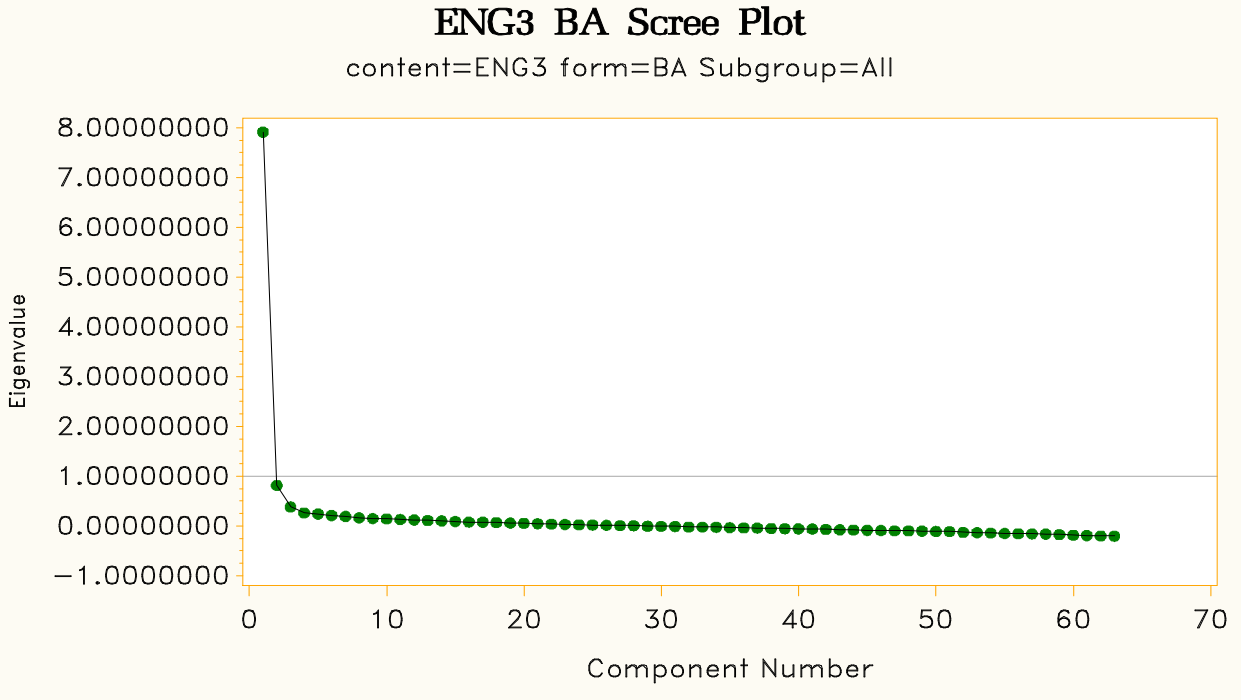


Figure 86. Spring 2014 English III Form BA scree plot: Accommodated

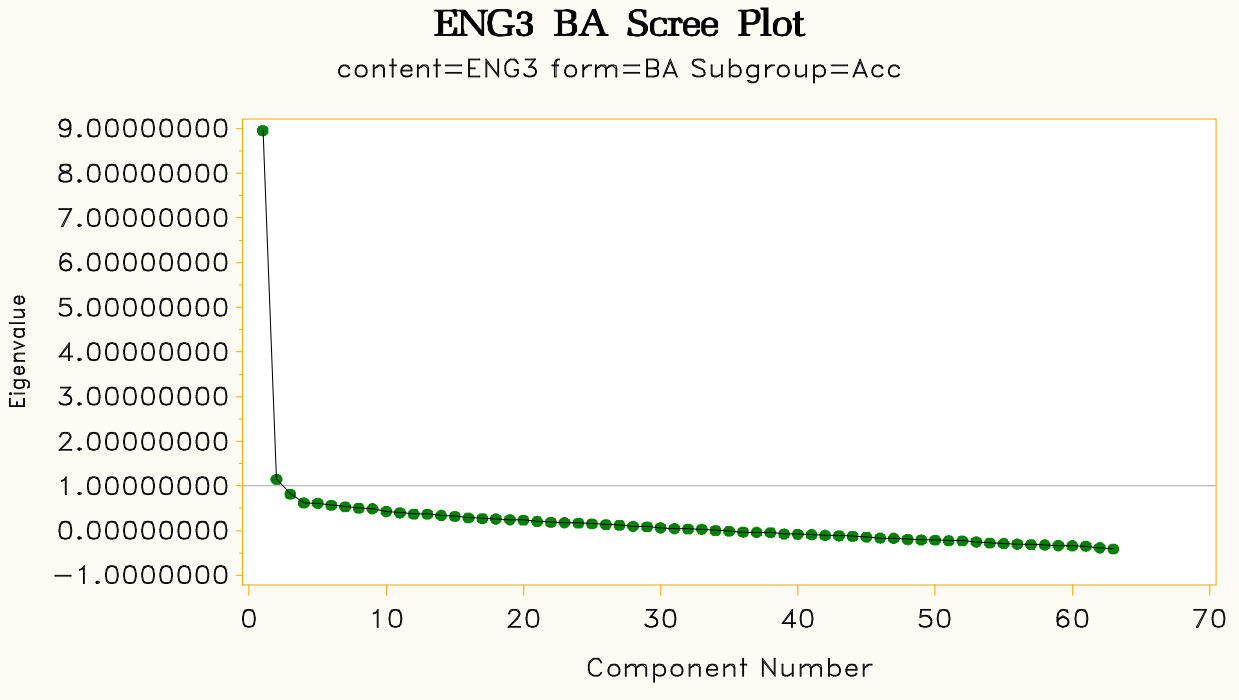


Figure 87. Spring 2014 English III Form BA scree plot: English Language Learner

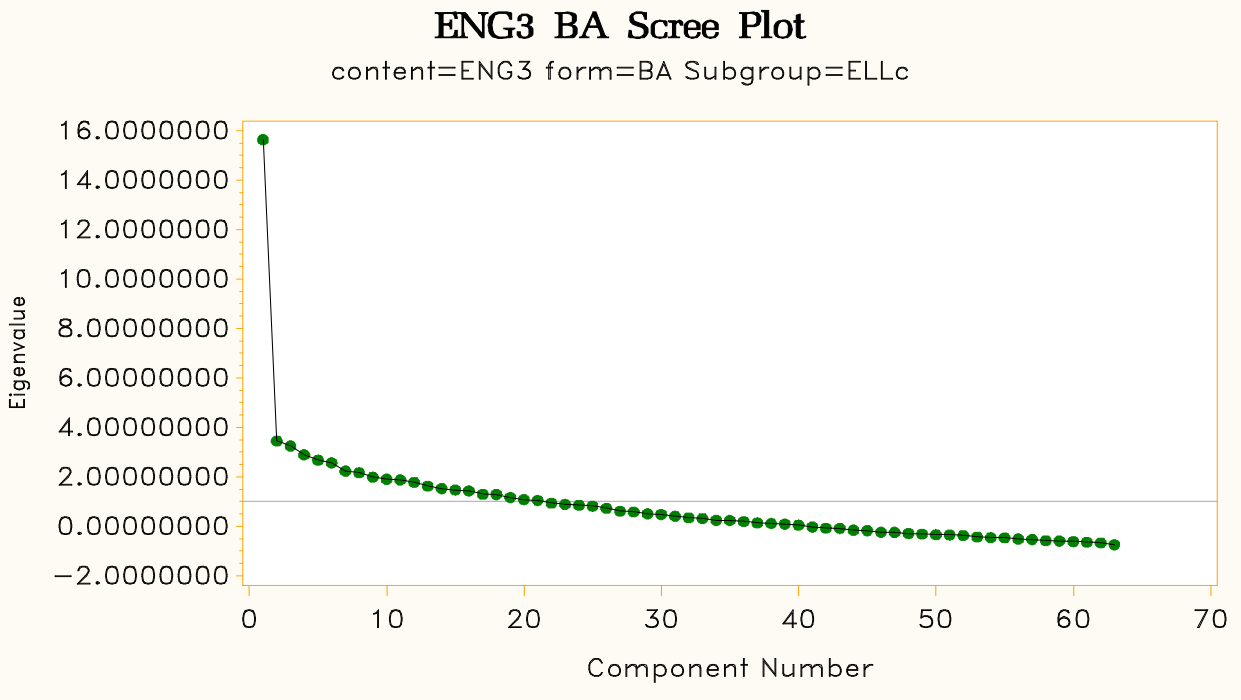


Figure 88. Spring 2014 English III Form BA scree plot: Individualized Education Program

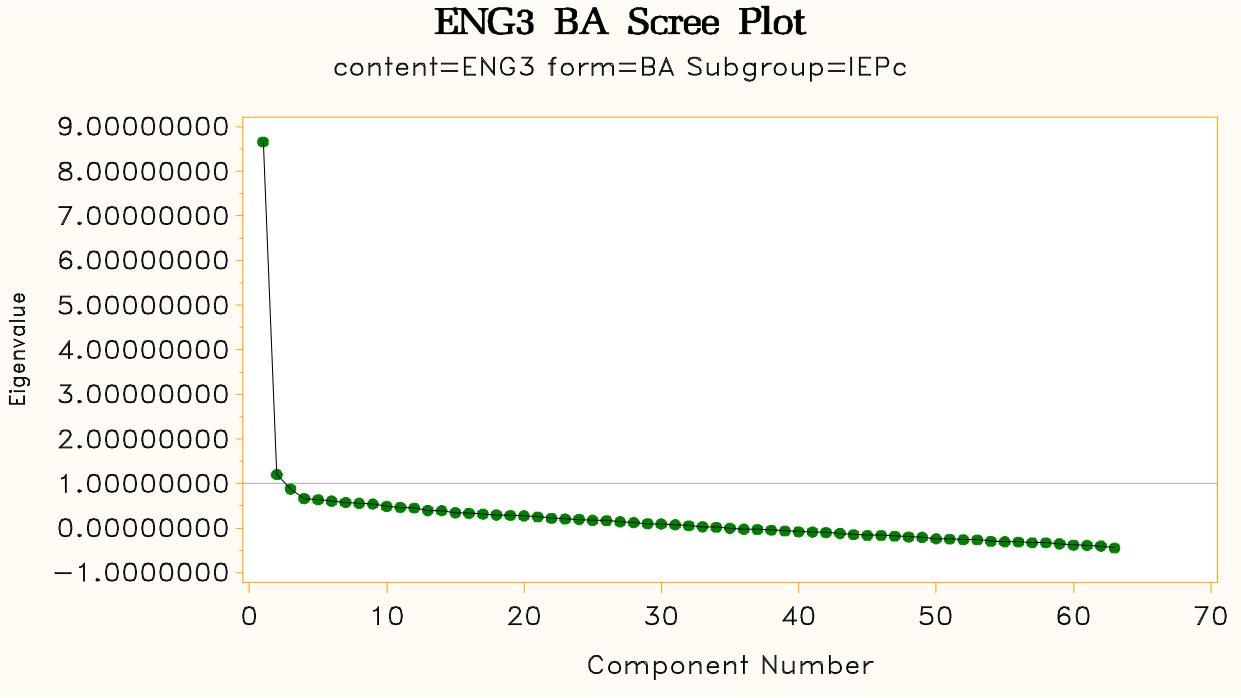


Figure 89. Spring 2014 English III Form BB scree plot: All

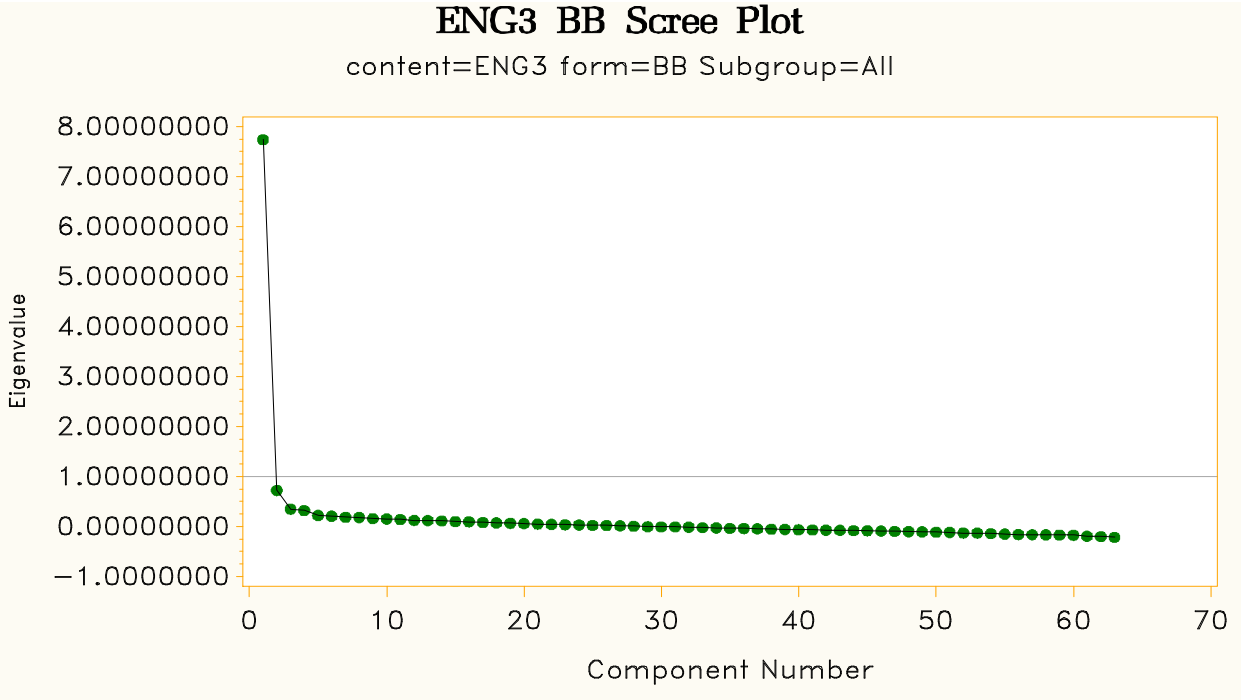


Figure 90. Spring 2014 English III Form BB scree plot: Accommodated

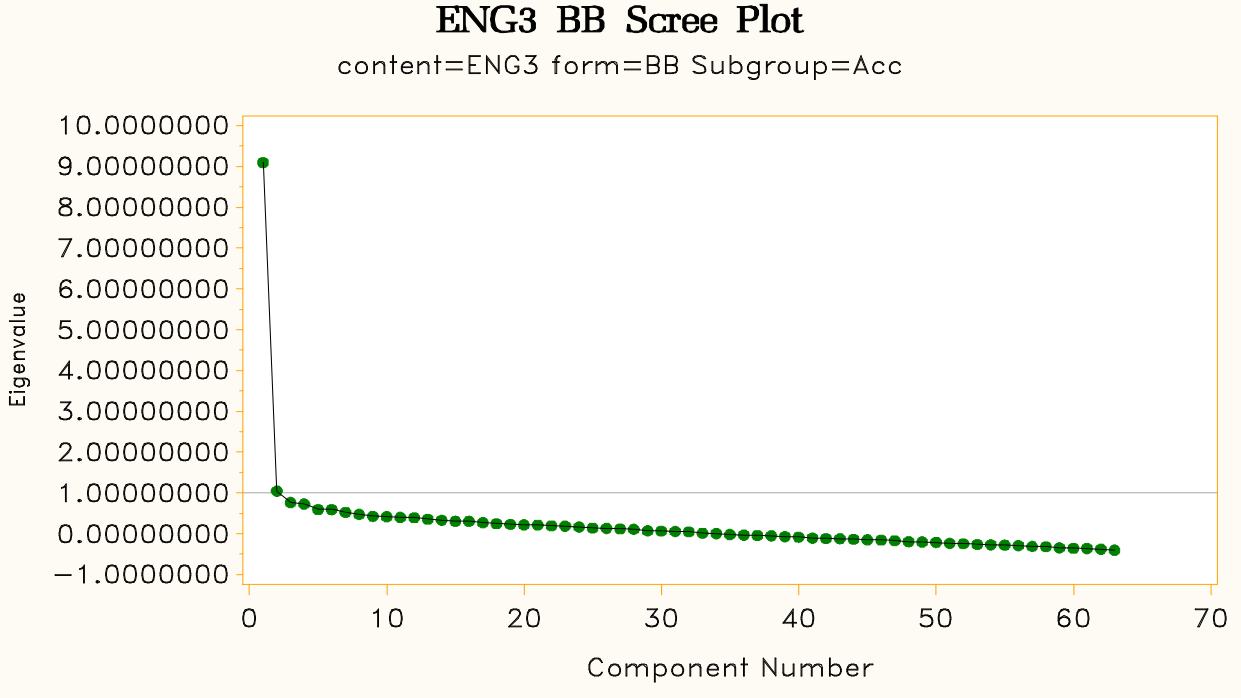


Figure 91. Spring 2014 English III Form BB scree plot: English Language Learner

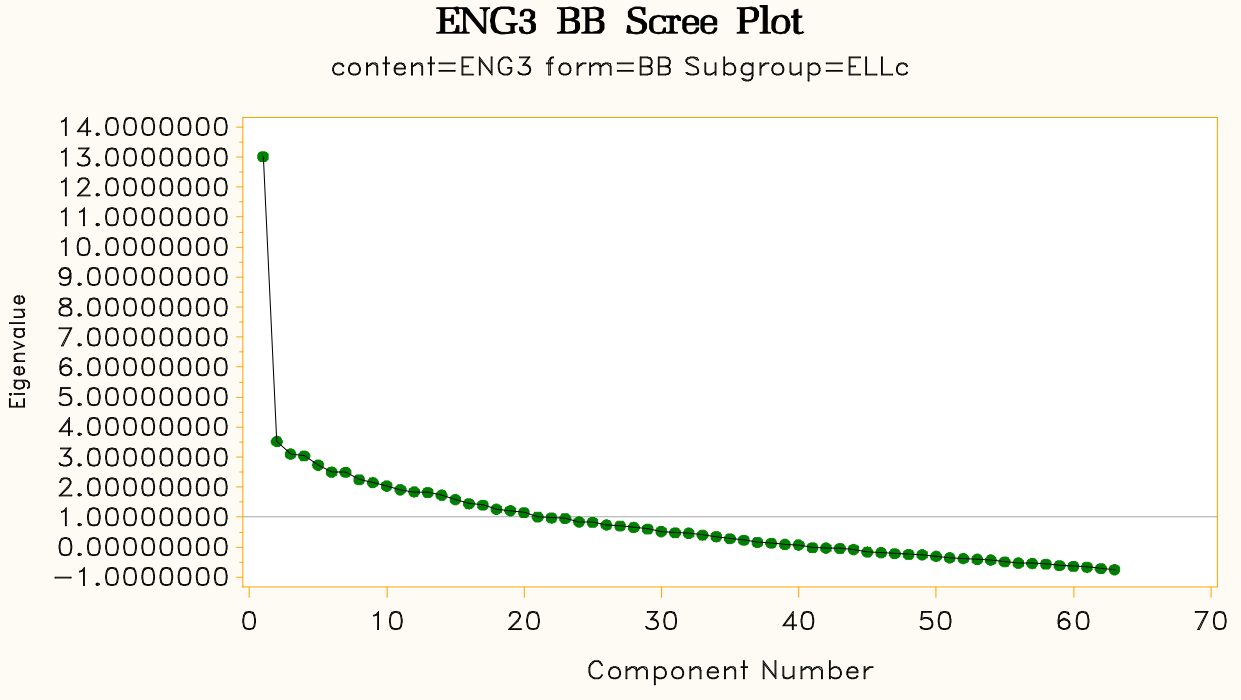


Figure 92. Spring 2014 English III Form BB scree plot: Individualized Education Program

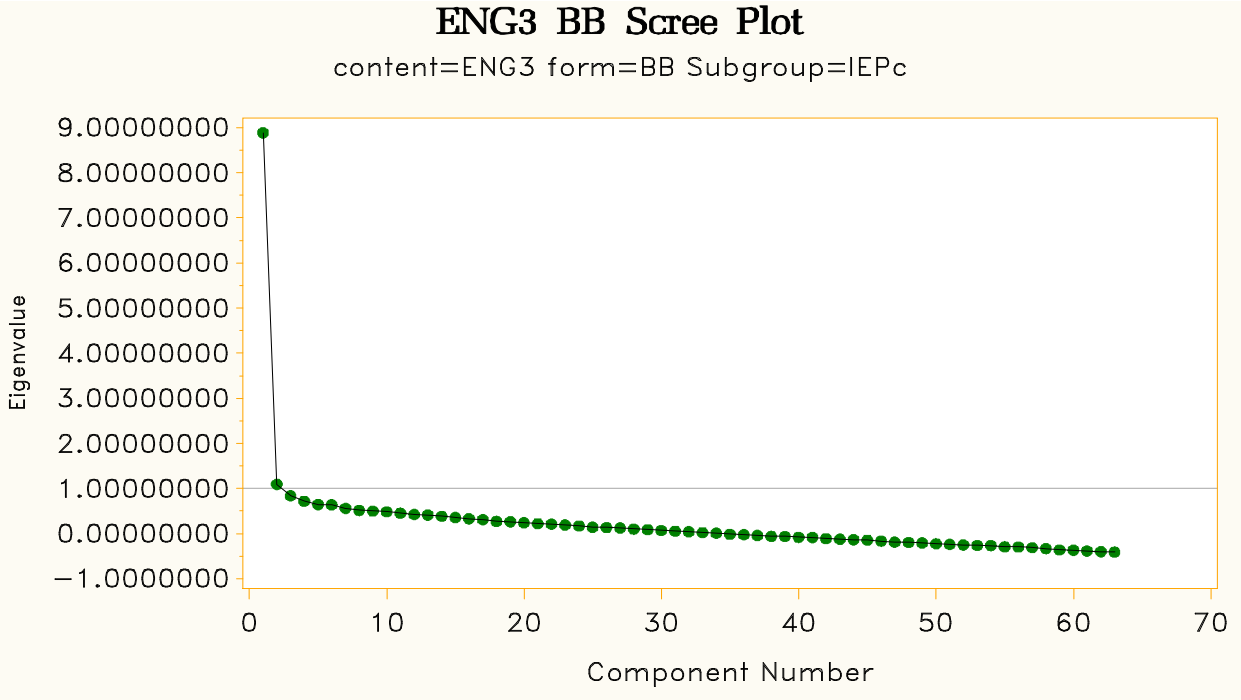


Figure 93. Spring 2014 Geometry Form A scree plot: All

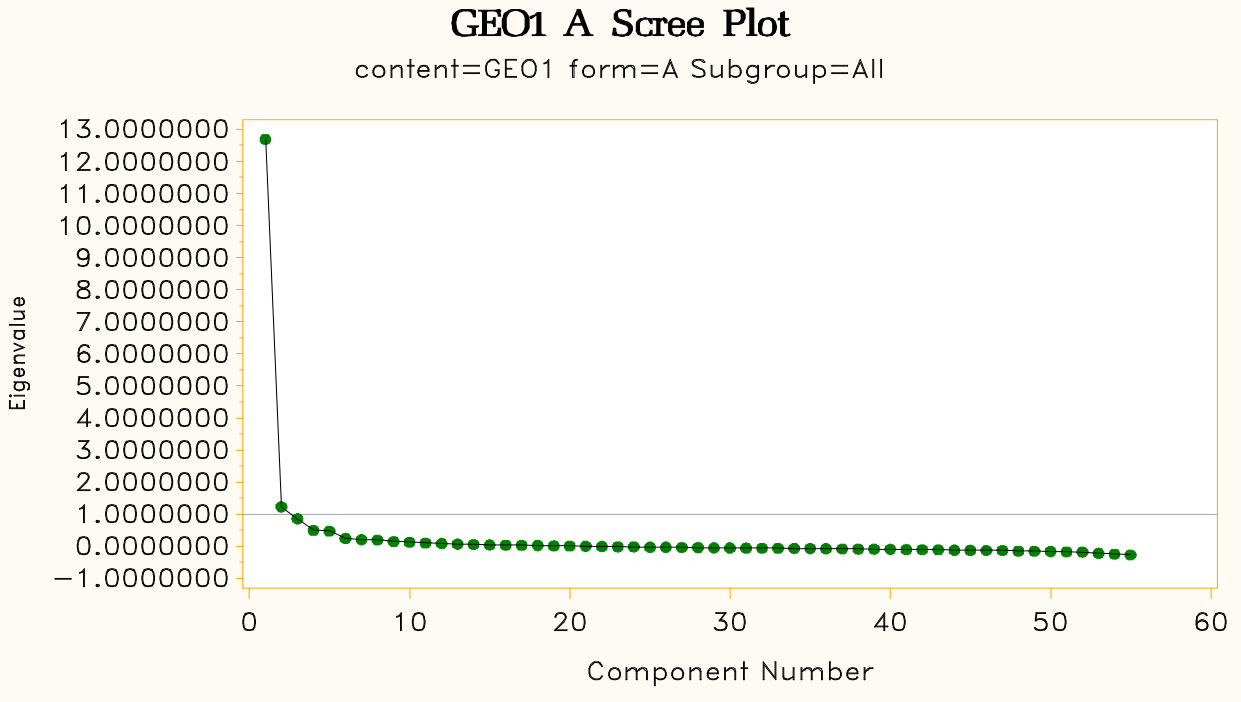


Figure 94. Spring 2014 Geometry Form A scree plot: Accommodated

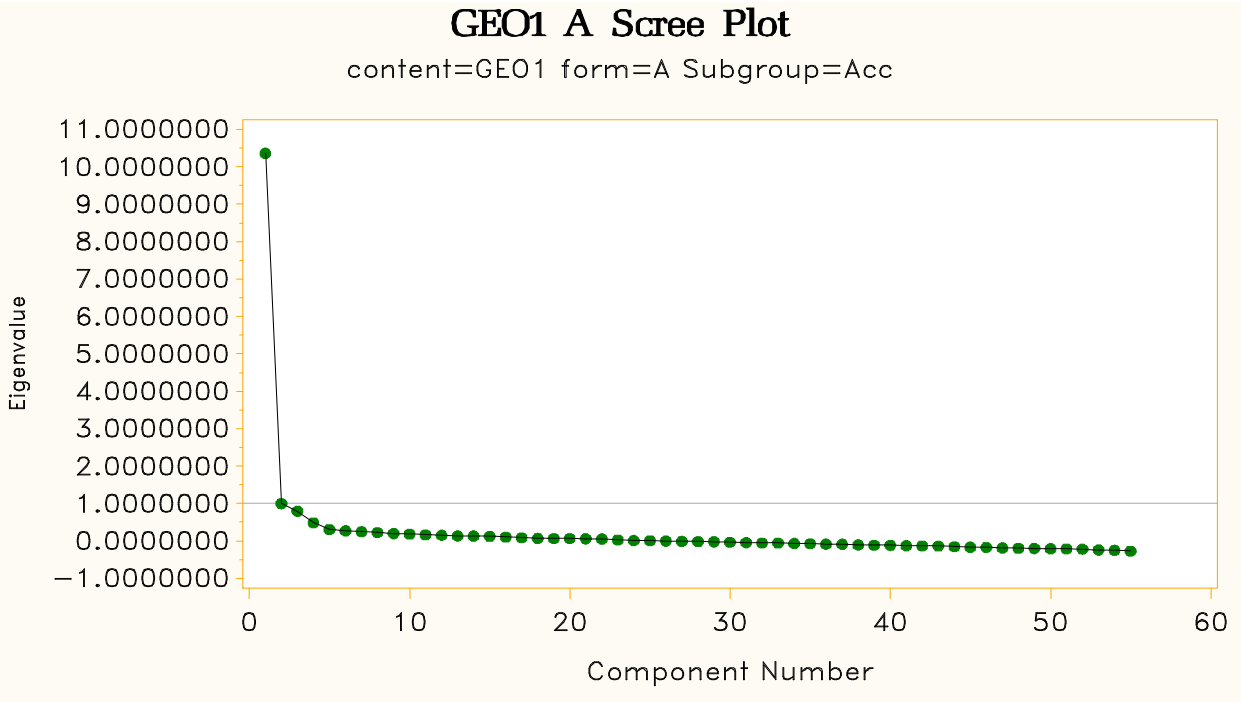


Figure 95. Spring 2014 Geometry Form A scree plot: English Language Learner

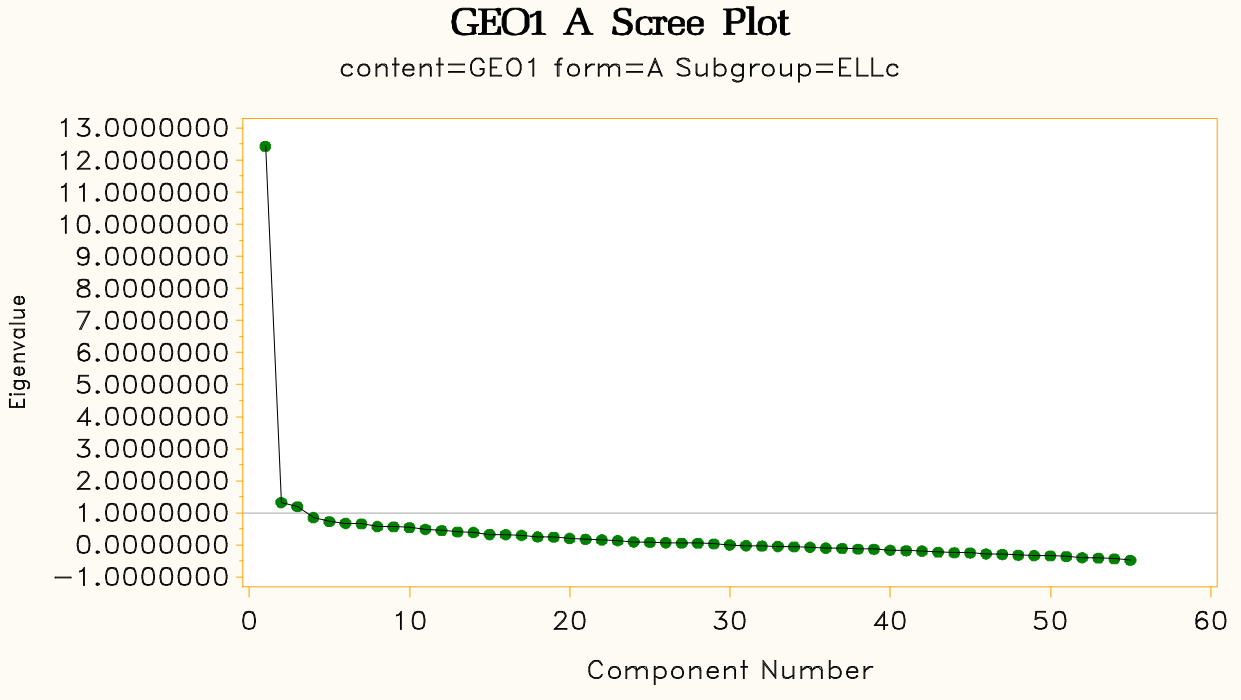


Figure 96. Spring 2014 Geometry Form A scree plot: Individualized Education Program

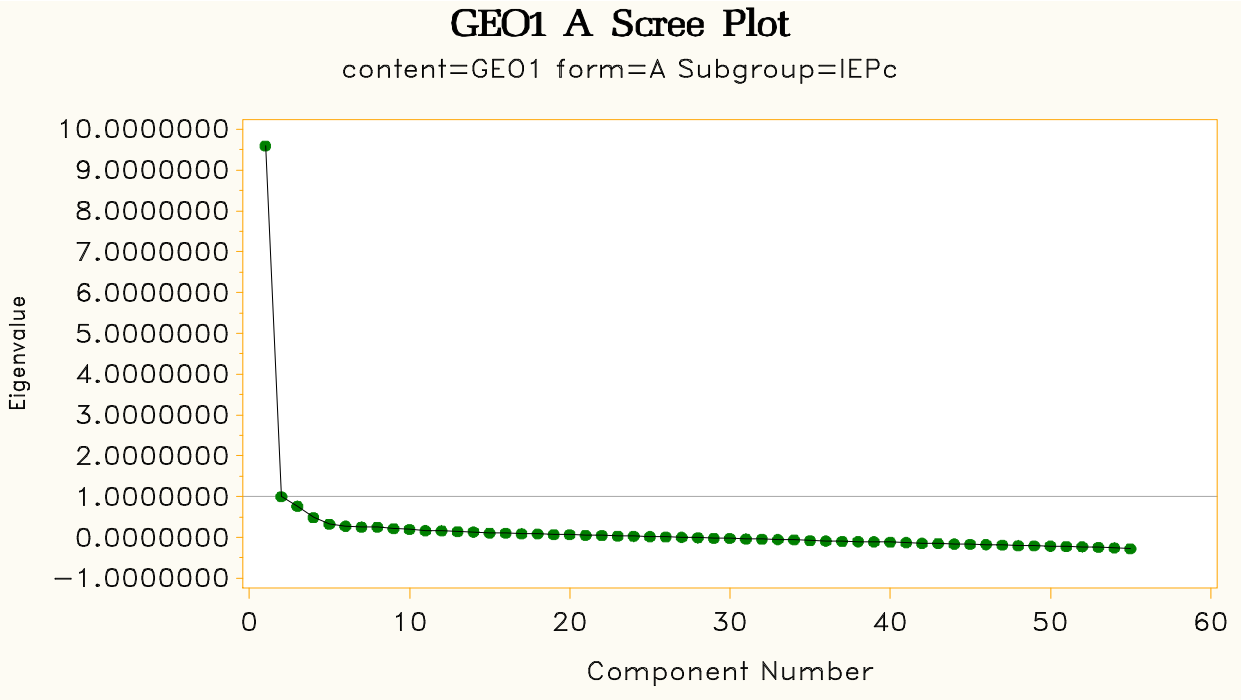


Figure 97. Spring 2014 Geometry Form B scree plot: All

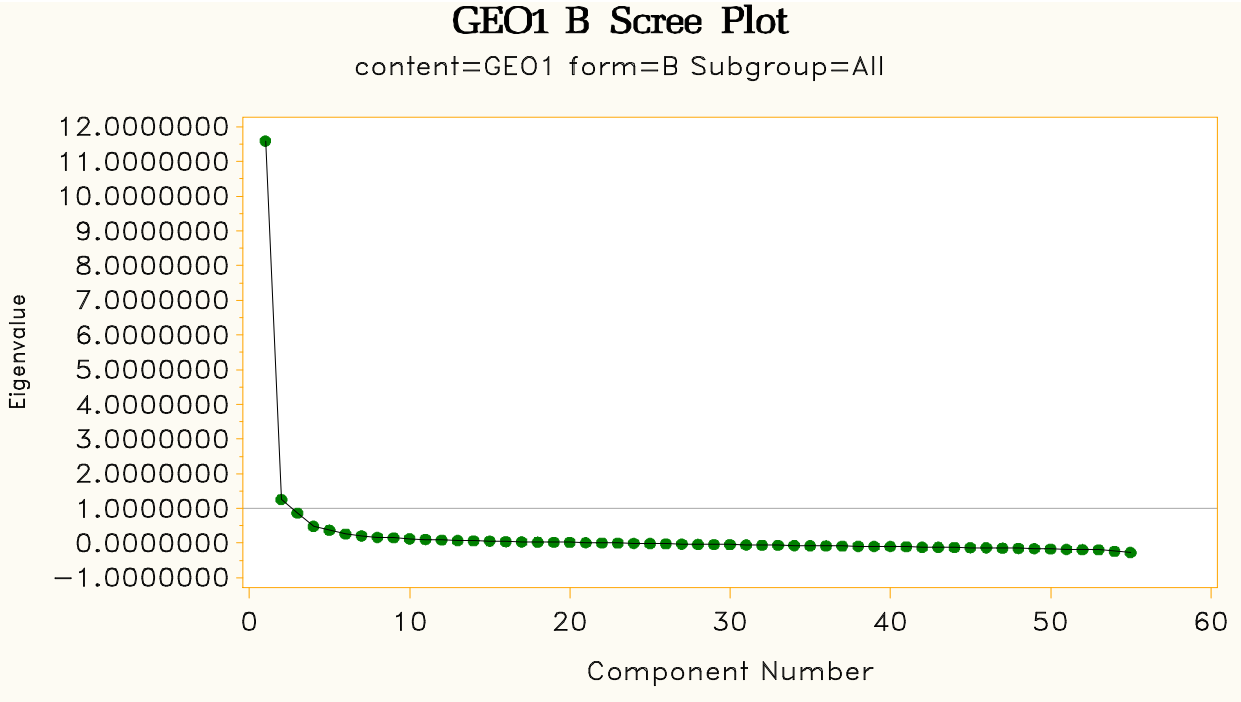


Figure 98. Spring 2014 Geometry Form B scree plot: Accommodated

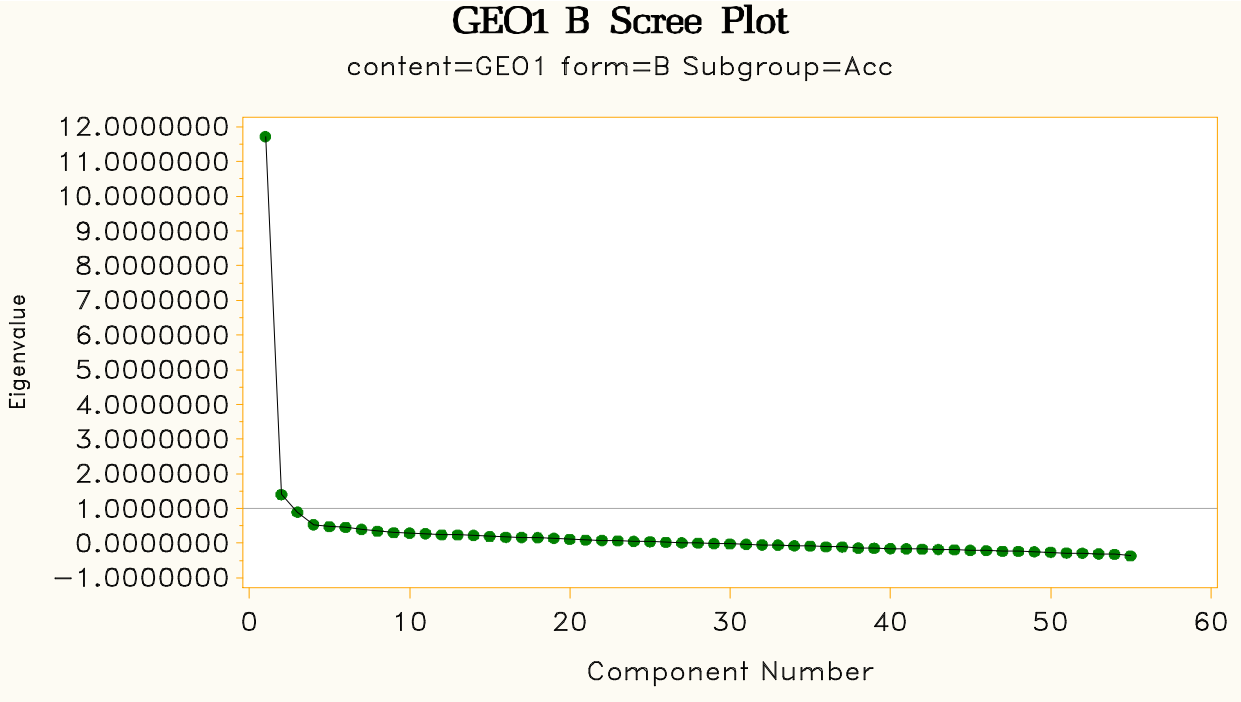


Figure 99. Spring 2014 Geometry Form B scree plot: English Language Learner

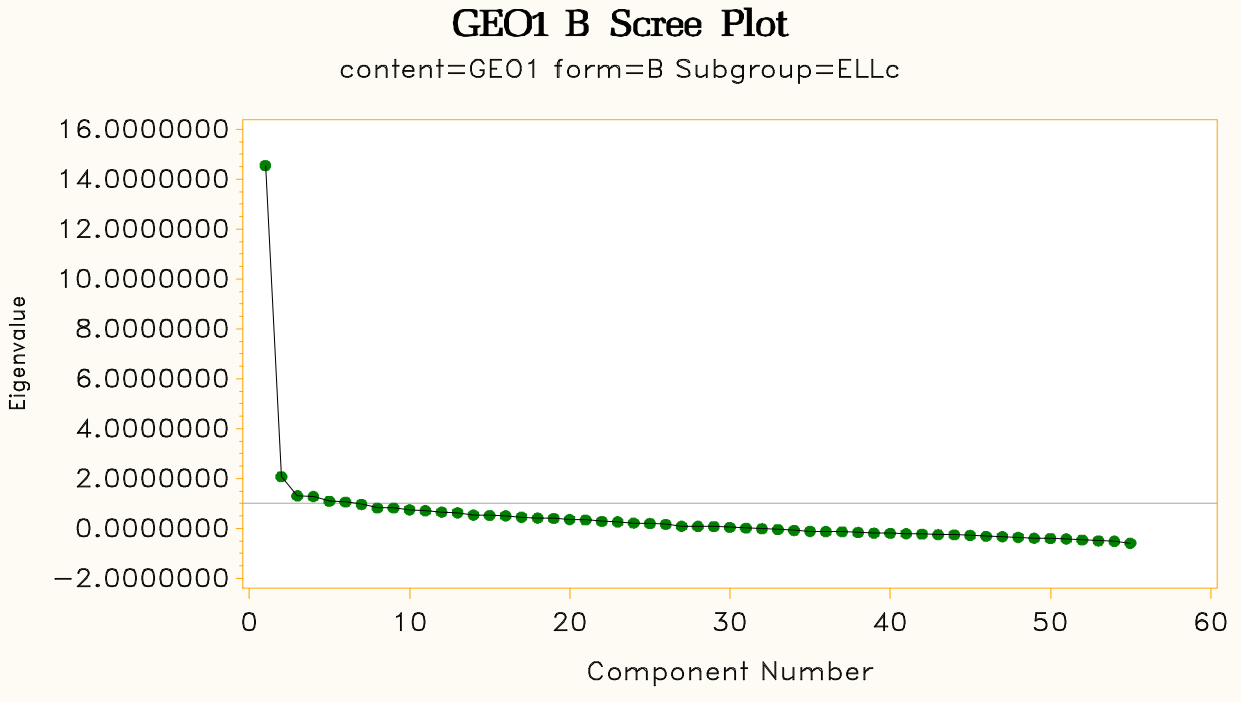


Figure 100. Spring 2014 Geometry Form B scree plot: Individualized Education Program

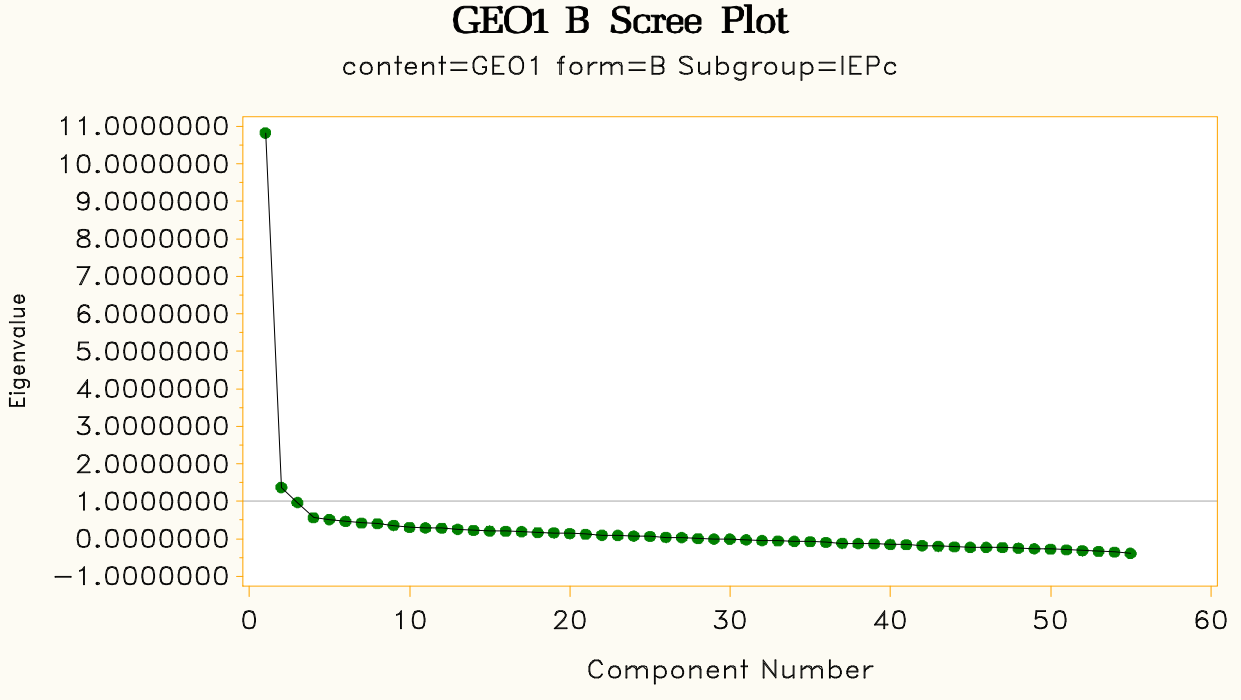


Figure 101. Spring 2014 U.S. History Form A scree plot: All

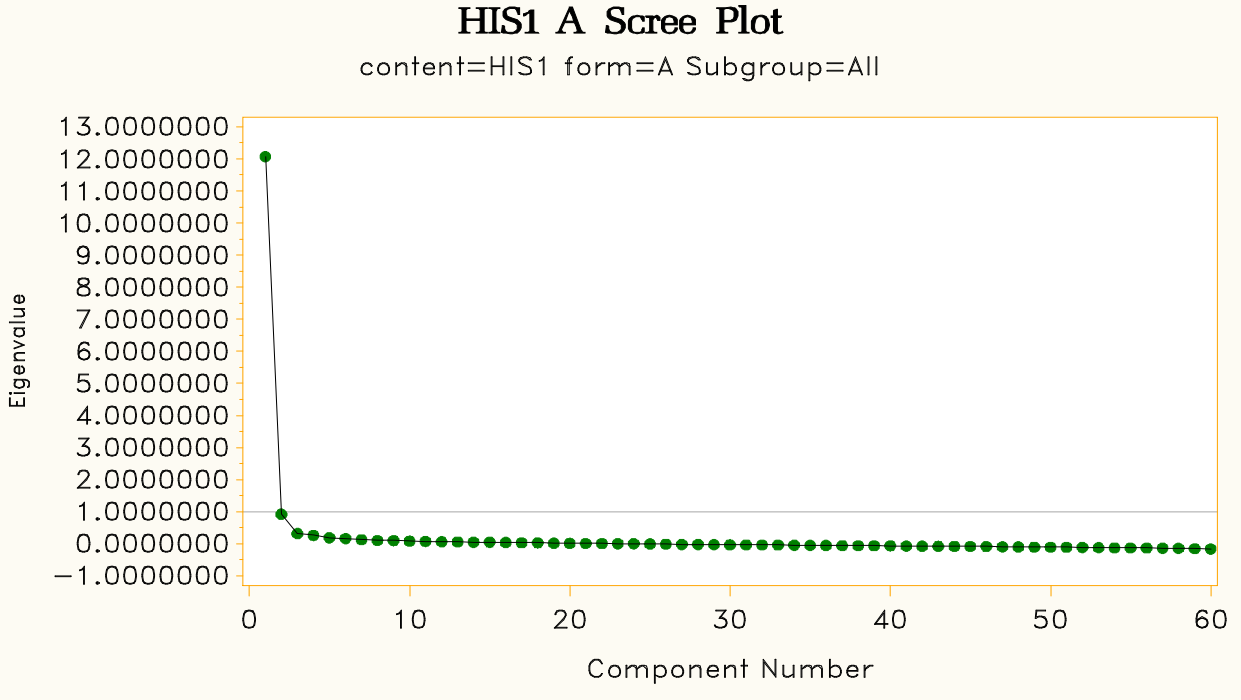


Figure 102. Spring 2014 U.S. History Form A scree plot: Accommodated

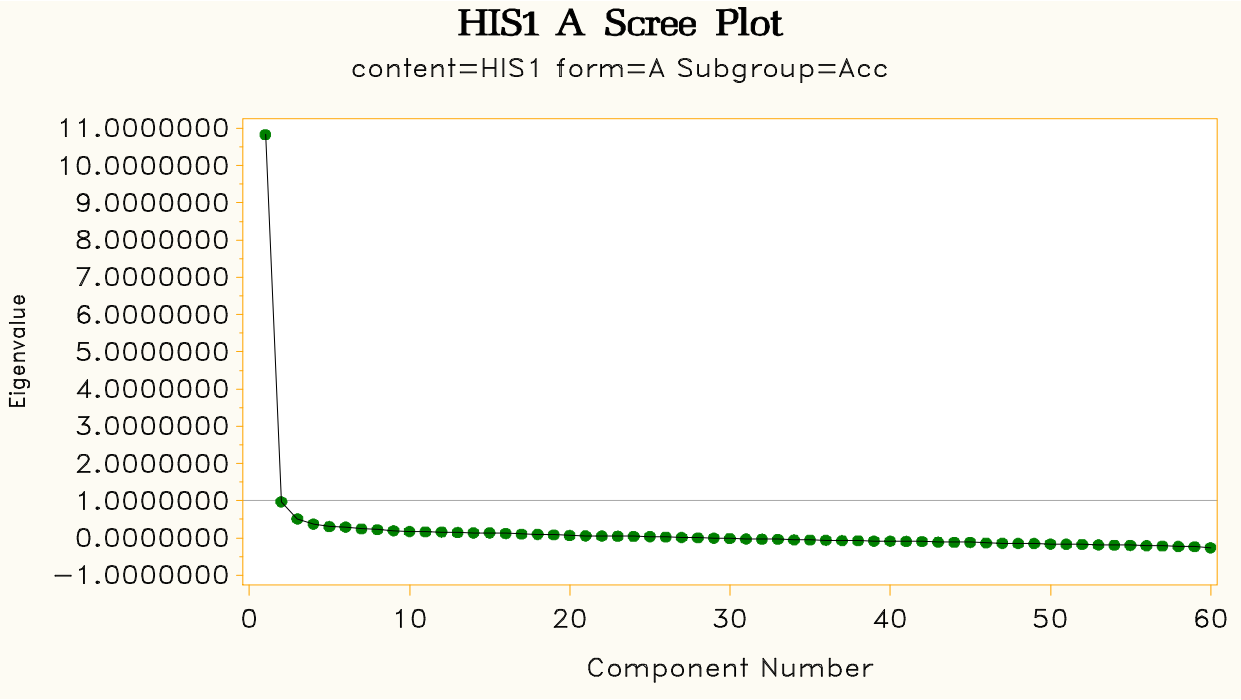


Figure 103. Spring 2014 U.S. History Form A scree plot: English Language Learner

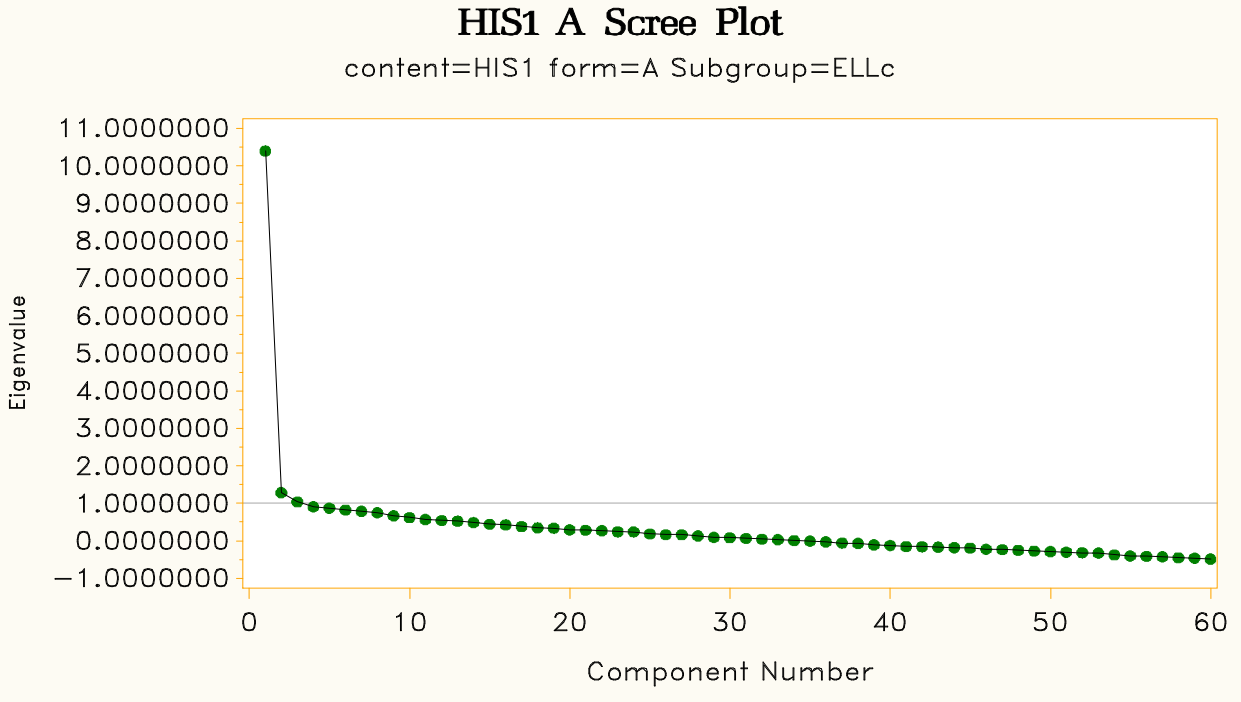


Figure 104. Spring 2014 U.S. History Form A scree plot: Individualized Education Program

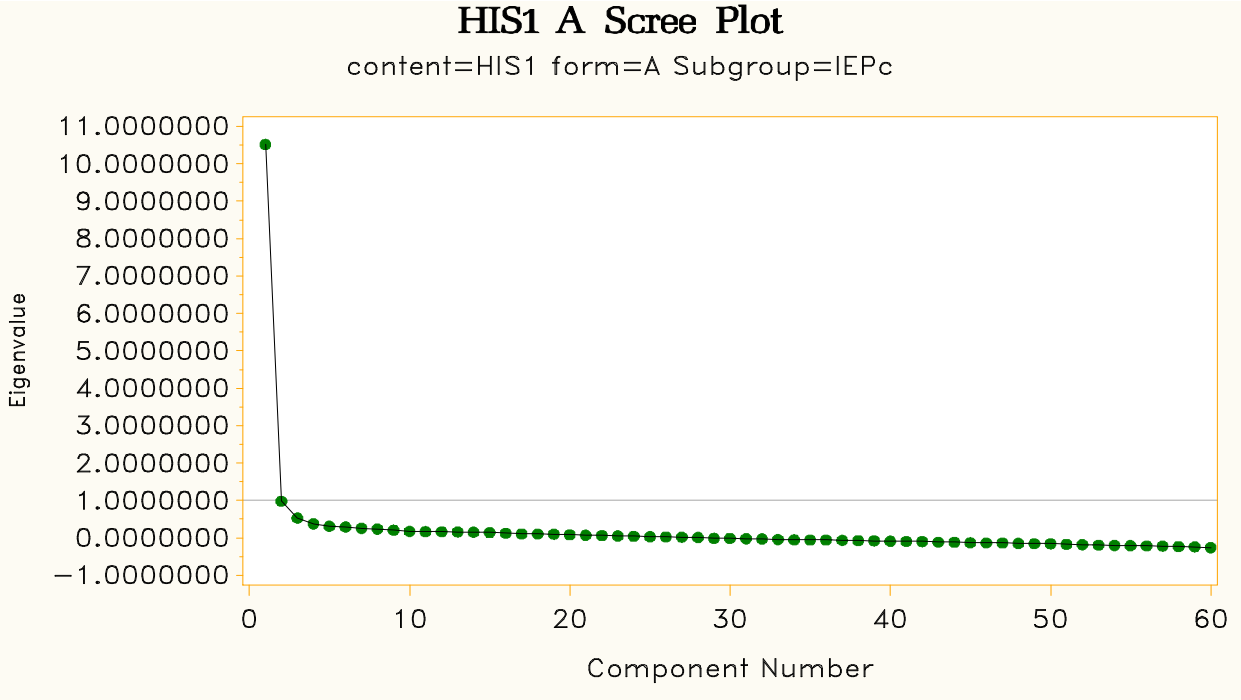


Figure 105. Spring 2014 U.S. History Form B scree plot: All

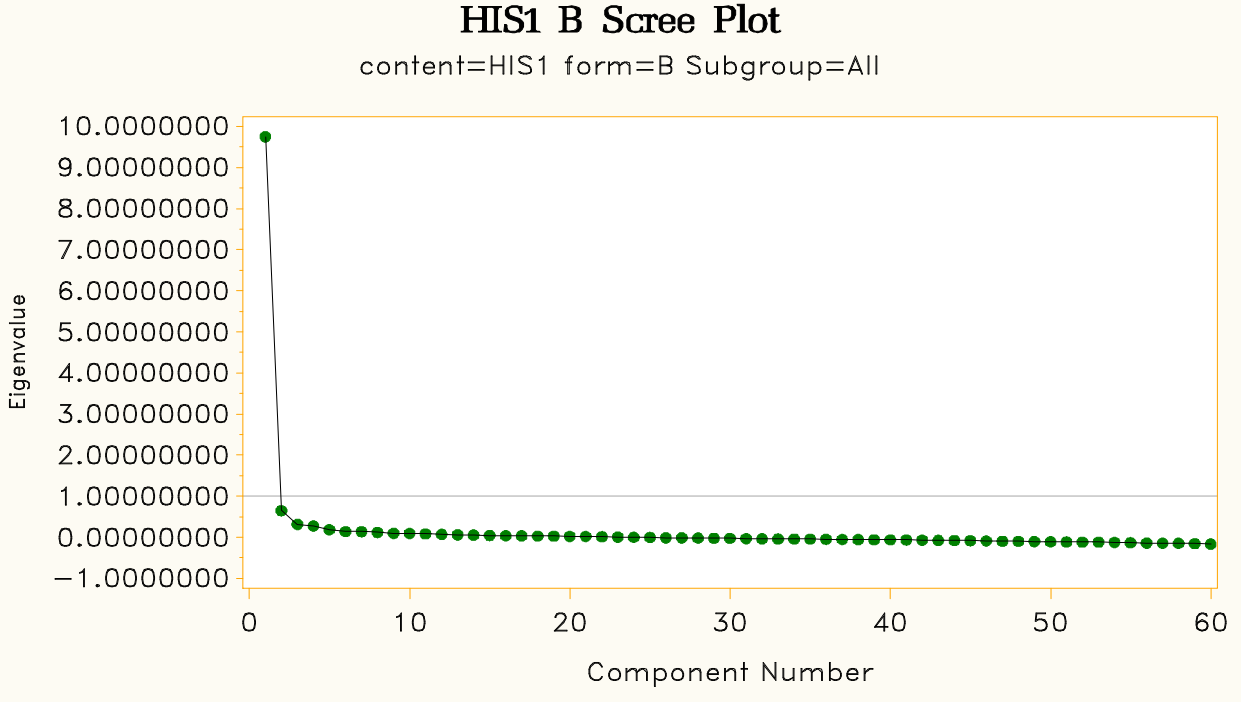


Figure 106. Spring 2014 U.S. History Form B scree plot: Accommodated

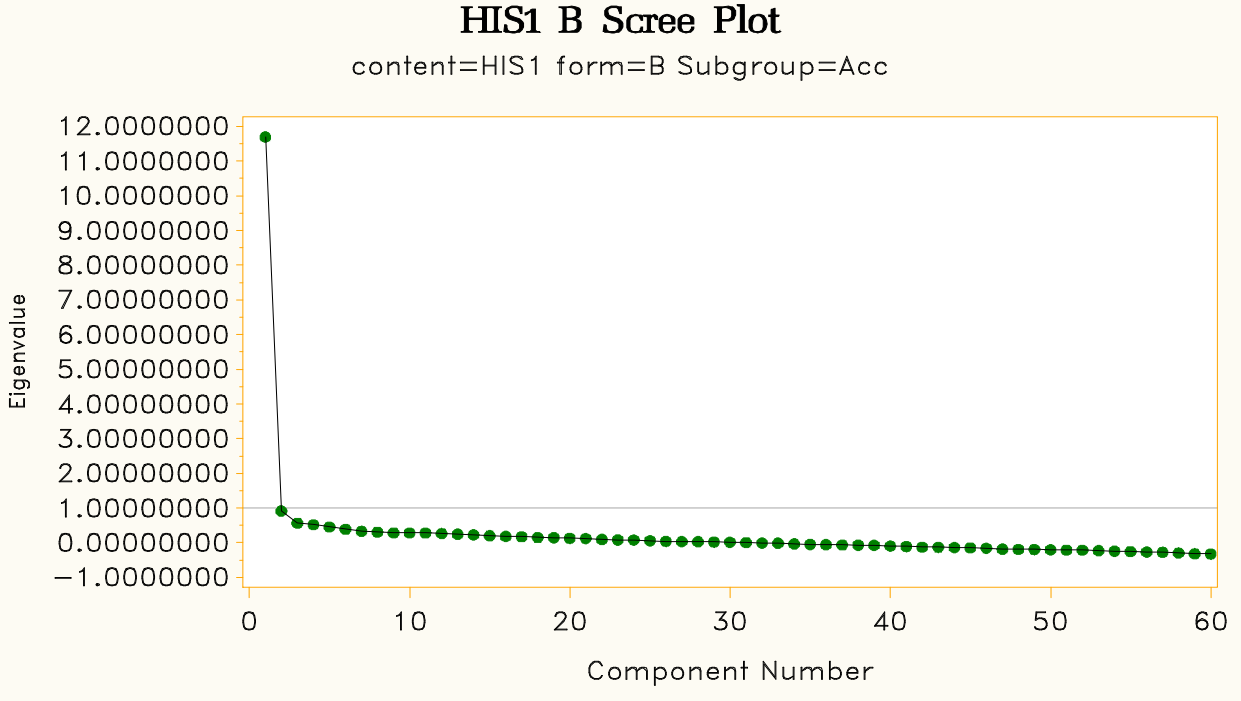


Figure 107. Spring 2014 U.S. History Form B scree plot: English Language Learner

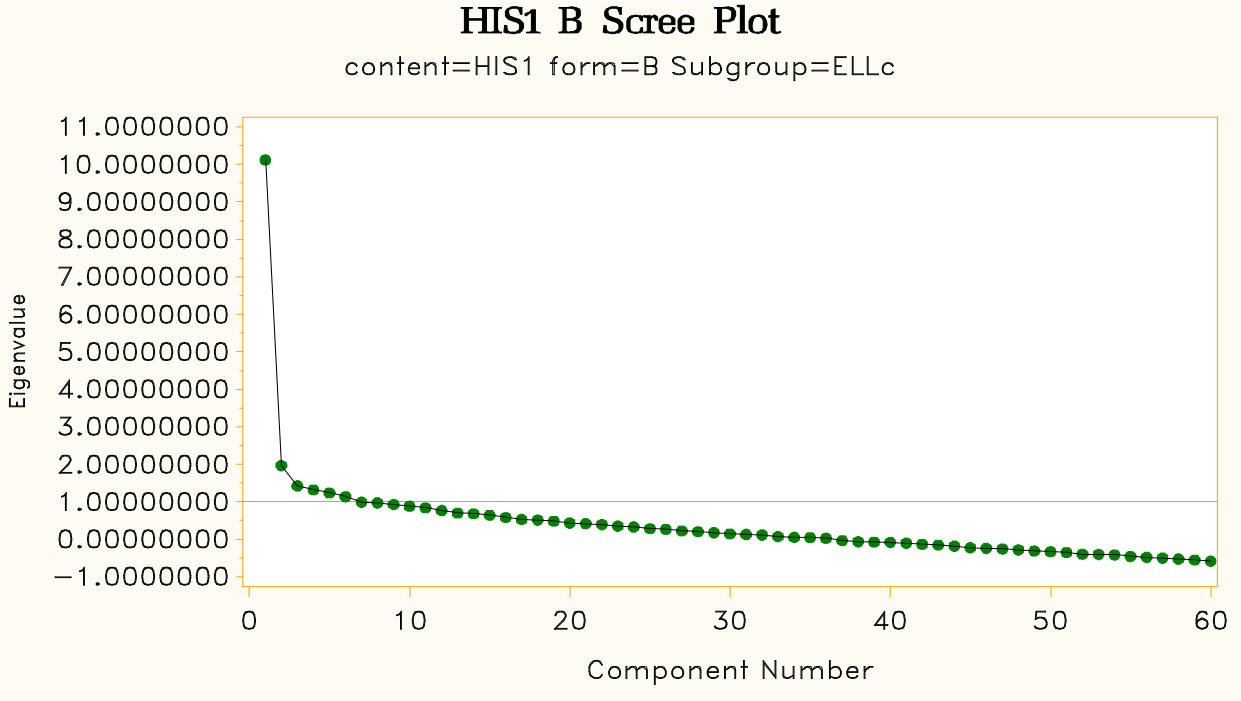
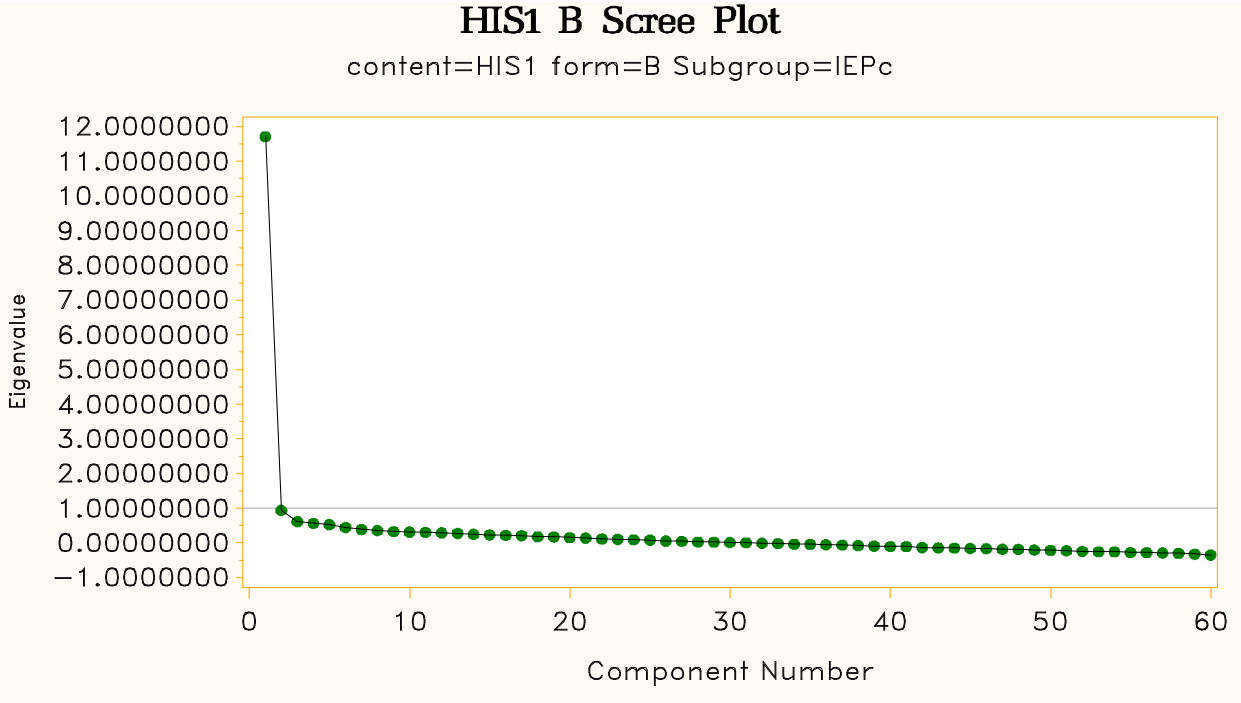


Figure 108. Spring 2014 U.S. History Form B scree plot: Individualized Education Program



Appendices

Appendix A
Standards, Objectives/Skills, and Processes Assessed by Subject

Table A1. OCCT Test Blueprint and Actual Item Counts: Algebra I

OAS Standard and Objective	Ideal Number of Items for Alignment to OAS	Actual Number of Items on 2014 Test Form A	Actual Number of Items on 2014 Test Form B
Number Sense and Algebraic Operations	**15**		
1.1 Equations and Formulas	6	6	6
1.2 Expressions	9	9	9
Relations and Functions	**31**		
2.1 Relations and Functions	6	6	6
2.2 Linear Equations and Graphs	15	15	15
2.3 Linear Inequalities and Graphs	6	6	6
2.4 Systems of Equations	4	4	4
Data Analysis, Probability, and Statistics	**9**		
3.1 Data Analysis	5	5	5
3.3 Line of Best Fit	4	4	4
Total Test	**55**	**55**	**55**

Table A2. OCCT Test Blueprint and Actual Item Counts: Algebra II

OAS Standard and Objective	Ideal Number of Items for Alignment to OAS	Actual Number of Items on 2014 Test Form A	Actual Number of Items on 2014 Test Form B
Number Sense and Algebraic Operations	**15**		
1.1 Rational Exponents	5–6	6	5
1.2 Polynomial and Rational Expressions	5–6	5	6
1.3 Complex Numbers	4	4	4
Relations and Functions	**31**		
2.1 Functions and Function Notation	5	5	5
2.2 Systems of Equations	5	5	5
2.3 Quadratic Equations and Functions	5	5	5
2.4 Conic Sections	4	4	4
2.5 Exponential and Logarithmic Functions	4	4	4
2.6 Polynomial Equations and Functions	4	4	4
2.7 Rational Equations and Functions	4	4	4
Data Analysis, Probability, and Statistics	**9**		
3.1 Analysis of Collected Data	5	5	5
3.2 Arithmetic and Geometric Sequences	4	4	4
Total Test	**55**	**55**	**55**

Table A3. OCCT Test Blueprint and Actual Item Counts: Geometry

OAS Standard and Objective	Ideal Number of Items for Alignment to OAS	Actual Number of Items on 2014 Test Form A	Actual Number of Items on 2014 Test Form B
Logical Reasoning	**6**		
1.1 Inductive and Deductive Reasoning	4	4	4
1.2 Conditional Statements	2	2	2
Properties of 2-Dimensional Figures	**20**		
2.1 Line and Angle Relationships	4	4	4
2.2 Polygons and Other Plane Figures	4	4	4
2.3 Similarity	4	4	4
2.4 Congruence	4	4	4
2.5 Circles	4	4	4
Triangles and Trigonometric Ratios	**12**		
3.1 Pythagorean Theorem	4	4	4
3.2 Right Triangle Relationships	4	4	4
3.3 Trigonometric Functions	4	4	4
Properties of 3-Dimensional Figures	**10**		
4.1 Polyhedra and Other Solids	6	6	6
4.2 Similarity	2	2	2
4.3 Models and Perspectives	2	2	2
Coordinate Geometry	**7**		
5.1 Properties of Points, Segments, and Lines	4	4	4
5.2 Properties of Figures	3	3	3
Total Test	**55**	**55**	**55**

Table A4. OCCT Test Blueprint and Actual Item Counts: English II

OAS Standard and Objective	Ideal Number of Items for Alignment to OAS	Actual Number of Items on 2014 Test Form A	Actual Number of Items on 2014 Test Form B
Reading/Literature			
Vocabulary	**6–8**	**7**	**5**
Comprehension	**16–20**		
2.1 Literal Understanding	4–5	4	4
2.2 Inferences and Interpretation	4–5	4	4
2.3 Summary and Generalization	4–5	5	8
2.4 Analysis and Examination	4–5	7	5
Literature	**17–20**		
3.1 Literary Genres	4–5	4	4
3.2 Literary Elements	5–6	5	6
3.3 Figurative Language and Sound Devices	4–5	6	6
3.4 Literary Works	4–5	2	2
Research and Information	**6**	**4**	**4**
Writing/Grammar/Usage and Mechanics			
1.0, 2.0 Writing	**1 (6 points)**		
Writing Prompt	1	1	1
Grammar/Usage and Mechanics	**12**		
3.1 Standard English Usage	4	5	6
3.2 Mechanics and Spelling	4	3	2
3.3 Sentence Structure	4	4	4
Total Test	**61 (66 Points)**	**61**	**61**

Table A5. OCCT Test Blueprint and Actual Item Counts: English III

OAS Standard and Objective	Ideal Number of Items for Alignment to OAS	Actual Number of Items on 2014 Test Form A	Actual Number of Items on 2014 Test Form B
Reading/Literature			
1.0 Vocabulary	**6–8**	**6**	**7**
Comprehension	**16–20**		
2.1 Literal Understanding	4–5	3	4
2.2 Inferences and Interpretation	4–5	6	5
2.3 Summary and Generalization	4–5	6	4
2.4 Analysis and Examination	4–5	6	4
Literature	**17–20**		
3.1 Literary Genres	4–5	4	3
3.2 Literary Elements	5–6	5	10
3.3 Figurative Language and Sound Devices	4–5	3	3
3.4 Literary Works	4–5	2	3
Research and Information	**6–7**	**7**	**5**
Writing/Grammar/Usage and Mechanics			
1.0, 2.0 Writing	**1 (10 points)**		
Writing Prompt	1	1	1
Grammar/Usage and Mechanics	**12**		
3.1 Standard English Usage	4–5	6	6
3.2 Mechanics and Spelling	0–2	5	5
3.3 Sentence Structure	4–5	3	3
3.4 Manuscript Conventions	4–5	0	0
Total Test	**63 (72 Points)**	**63**	**63**

Table A6. OCCT Test Blueprint and Actual Item Counts: Biology I

OAS Standard and Objective	Ideal Number of Items for Alignment to OAS	Actual Number of Items on 2014Test Form A	Actual Number of Items on 2014 Test Form B
Process Standards			
Observe and Measure	**6**		
P1.1 Qualitative/quantitative observations and changes	4	4	4
P1.2 Use appropriate tools and P1.3 Use appropriate SI units	2	2	2
Classify	**7–8**		
P2.1 Use observable properties to classify	4	5	4
P2.2 Identify properties of a classification system	3–4	2	3
Experimental Design	**16–19**		
P3.1 Evaluate the design of investigations	4–5	5	4
P3.2 Hazards/practice safety and P3.4 Identify a testable hypothesis in a biology investigation	5–6	4	4
P3.3 Use mathematics to show relationships	4–6	4	5
P3.5 Identify potential hazards and practice safety procedures in all science activities **	3	3	3
Interpret and Communicate	**20–24**		
P4.1 Select predictions based on observed patterns of evidence	4–5	6	5
P4.3 Interpret line, bar, trend, and circle graphs	4–5	4	4
P4.4 Accept or reject a hypothesis	4–5	5	5
4.5 Make logical conclusions based on experimental data	4–5	4	4
4.8 Identify an appropriate graph or chart	4	4	4
4.8a Translate quantitative information expressed in words into visual form			
4.8b Translate information expressed visually or mathematically			
Model	**8**		
5.1 Interpret a model which explains a given set of observations	4	4	4
5.2 Select predictions based on models, using mathematics when appropriate	4	4	5
Total Test	**60**	**60**	**60**

Table A6. OCCT Test Blueprint and Actual Item Counts: Biology I (*continued*)

OAS Standard and Objective	Ideal Number of Items for Alignment to OAS	Actual Number of Items on 2014 Test Form A	Actual Number of Items on 2014 Test Form B
Content Standards			
The Cell	**12–15**		
C1.1 Cells structures and functions	4–6	4	4
C1.2 Differentiation of cells	4–6	4	4
C1.3 Specialized cells	4	4	4
The Molecular Basis of Heredity	**12–15**		
C2.1 DNA structure and function in heredity	6–8	4	4
C2.2 Sorting and recombination of genes	6–7	4	5
Biological Diversity	**12–15**		
C3.1 Variation among organisms	4–6	5	4
C3.2 Natural selection and biological adaptations	4–6	6	7
C3.3 Behavior patterns can be used to ensure reproductive success	4	5	4
The Interdependence of Organisms	**8–10**		
C4.1 Organisms both cooperate and compete	4–6	4	4
C4.2 Population dynamics	4–6	5	5
Matter/Energy/Organization in Living Systems	**12–15**		
C5.1 Complexity and organization used for survival	4	4	4
C5.2 Matter and energy flow in living and nonliving systems	4	4	4
C5.3 Earth cycles including abiotic and biotic factors	4	4	4
Total Test	**57**	**57**	**57**

Table A7. OCCT Test Blueprint and Actual Item Counts: U.S. History

OAS Standard and Objective	Ideal Number of Items for Alignment to OAS	Actual Number of Items on 2014 Test Form A	Actual Number of Items on 2014 Test Form B
Transformation of the United States from Post-Reconstruction to the Progressive Era, 1878–1900	**8**		
1.1 Post Reconstruction Amendments	2–4	2	3
1.2 Immigration, Westward Movement, and Native American Experiences	2–4	3	4
1.3 Impact of Industrialization on Society, Economics, and Politics	2–4	3	1
Expanding Role of the United States in International Affairs	**6**	**6**	**6**
Cycles of Economic Boom and Bust in the 1920s and 1930s	**8**		
3.1 Economic, Political, & Social Transformation Between the World Wars	3–5	4	4
3.2, 3.3 Economic Destabilization and the Great Depression/New Deal	3–5	4	4
Role of the U.S. in International Affairs and World War II 1933–1946	**8**		
4.1 Mobilization for World War II	3–5	4	4
4.2, 4.3 World War II and U.S. Reaction to the Holocaust	3–5	4	4
U.S. Foreign and Domestic Policies during the Cold War, 1945–1975	**18**		
5.1, 5.2 The Cold War - Foreign and Domestic	4–5	6	6
5.3 The Vietnam War Era	4–5	4	4
5.4 The African American Civil Rights Movement	4–6	4	4
5.5 Social Political Transformation	4–5	4	4
U.S. Foreign and Domestic Policies, 1976 to the Present	**12**		
6.1, 6.2, 6.3 End of the Cold War	4–8	6	7
6.4, 6.5 Post Cold War	4–8	6	5
Total Test	**60**	**60**	**60**