

HIGH SCHOOL ACADEMIC DATA AUDIT REPORT

Office of Auditor General

Brian Fleischer, Auditor General

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February 23, 2012

The Honorable Dennis Walcott
Chancellor
New York City Department of Education
52 Chambers Street
New York, NY 10007

Dear Chancellor Walcott:

Enclosed for your review is the Office of Auditor General's final audit report of findings and recommendations for our High School Academic Data Audit, which examined academic data for all 460 high schools of the New York City Department of Education and selected 60 schools with the most troubling data patterns for testing in three areas: credit and exam accumulation and course crediting, Regents high school examination scoring, and student discharges.

The enclosed report summarizes the findings in the areas tested and includes 17 recommendations to address deficiencies identified at the audited schools and to improve the accuracy and reliability of high school academic data citywide.

Very truly yours,

Brian Fleischer
Auditor General

Attachment

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I. INTRODUCTION AND AUDIT OBJECTIVES

Effective instruction and meaningful accountability require fair and accurate student performance data. As the New York City Department of Education (“Department”) has moved to hold schools and educators increasingly accountable for their students’ academic progress and success, the importance of the accuracy of the academic data reported by schools is underscored.

In February 2011, the Chancellor asked the Office of Auditor General (“OAG”) to oversee the development and execution of an audit of student performance data in New York City high schools with concerning data patterns as one component of a broader initiative to improve data accuracy in schools.

Our objective and emphasis in this initial year was to identify practices, either at individual schools or across schools, that warrant policy clarification and systems improvements. It was, additionally, an objective of the audit to bring attention to and clarify academic policies, documentation requirements and internal controls around student data, both for the leaders within the schools selected for audit and for the leaders within the Cluster and Network offices that support those schools. Further, it was anticipated that the results of the audit would help the Department to enhance training, communication and guidance for staff at all New York City high schools, identifying areas where central policies and protocols need to be clarified.

II. AUDIT SCOPE AND METHODOLOGY

The audit scope for credit and exam accumulation and course crediting covered the classes of 2009 and 2010, which include students who entered a New York City public high school on or after September 1, 2005, and graduated by August 31, 2009 and August 31, 2010, respectively, as well as students who were enrolled during the audit period (Spring 2011). The audit scope for student discharges covered students who entered a New York City public high school as part of the class of 2010 or 2011 and were discharged with a Code 11¹ between September 2006 and April 2011. The Regents high school examination scoring tests covered students enrolled during the audit period who took a Regents examination in the June 2011 administration.

For this initial year of the High School Academic Data Audit (“Audit”), the audit focused on schools with the most troubling data patterns. We examined academic data for all 460 high schools and selected 60 schools for the audit based on their data in the three areas tested, using a

¹ This code is used for students who have left New York City and are currently residing elsewhere.

risk-based school selection methodology driven by analyses of school data patterns against various metrics and triggers in three primary audit areas: credit and exam accumulation and course crediting, Regents high school examination scoring, and student discharges. Because of the risk-based nature of the school selection and student transaction sampling, it would be improper to extrapolate any of the Audit’s results to schools not selected for audit.²

The various tests across the three audit areas that were performed at each audited school covered a mix of students from the 2005-2009 and 2006-2010 cohorts, as well as still-enrolled students from multiple cohorts. The specific tests and the sample sizes varied from school to school, based on our data-driven risk assessments and school size. Consequently, we did not assign an overall audit “score” or “grade” to the sampled schools, and it would be inappropriate to attempt to do that based on audit results that rest on a risk-based methodology, a judgmental sampling selection and an uneven number of issues tested across schools. A detailed description of the school selection and sampling methodology is included as an appendix to this report.

III. AUDIT RESULTS SUMMARY

This High School Academic Data Audit was designed to identify weak practices, clarify academic policies and documentation requirements, and strengthen internal controls. We examined academic data for all 460 high schools and selected 60 schools for the audit with the most troubling data patterns in three areas: credit and exam accumulation and course crediting (53 schools), Regents high school examination scoring (60 schools), and student discharges (55 schools).

Key findings from our risk-based testing in these three areas at the selected schools include:

² The Department has undergone two recent external audits examining subjects that were included in this Audit, both of which involved random, rather than risk-based, sampling. The New York City Comptroller’s July 21, 2009 *Audit Report on the Department of Education’s Calculation of High School Graduation Rates (ME09-065A)* tested a random sample of graduates from the 2003-2007 cohort for compliance with academic course credit and Regents examination requirements, and ultimately concluded that 195 of 197 randomly-sampled graduates (99.0 percent) had met the tested requirements. The New York State Comptroller’s March 29, 2011 audit report on the Department’s *Accuracy of Reported Discharge Data (2009-N-9)* used a random statistical sampling methodology to test student discharge determinations and projected errors to recalculate the Department’s reported graduation rate for the 2004-2008 cohort. The report found that the correct graduation rate for the general education cohort was probably between 1.9 and 2.6 percentage points lower than the reported rate, and noted that the Comptroller’s office considered the reported rate to be generally accurate.

- Of 9,582 graduates in the 2010 cohort at the 53 schools tested for credit and exam accumulation and course crediting, 181 unique students did not earn the required academic credits or pass the required Regents examinations to graduate:
 - 164 students in 33 schools had not earned all required academic credits;
 - one school had 35 affected students;
 - nine schools had between five and 19 students;
 - 23 schools had fewer than five students;
 - 20 schools had no students affected.
 - 30 students in 15 schools had not passed all required Regents examinations;
 - two schools had between five and 19 students;
 - 13 schools had fewer than five students;
 - 38 schools had no students affected.
- 59 students in nine schools were awarded credits through “credit recovery” without documentation that the school complied with State regulations for awarding such credits;
- Four schools had two or more Regents examination subjects that were assessed to be outside an acceptable range of scoring variability among students whose scores dropped from passing to failing upon independent rescoring; an additional 10 schools had one subject assessed to be outside an acceptable range of scoring variability among students whose scores dropped from passing to failing upon independent rescoring; and
- 404 students in 45 schools were discharged without adequate supporting documentation.
 - six schools had more than 20 affected students;
 - 24 schools had between five and 19 students;
 - 15 schools had fewer than five students;
 - 10 schools had no students affected.

To the extent that we received allegations of cheating or other misconduct during the course of the Audit, or we identified such misconduct in the execution of the audit, we referred those matters to the Special Commissioner of Investigation. We further recommended withholding Progress Reports for some schools where allegations or irregularities impacting Progress Report data called into question the reliability of their Progress Report grade.

Given the data-driven, risk-based school selections and transaction sampling, it was not surprising that the Audit identified errors in high school academic data at the schools and in the areas that were tested. As noted above, the errors identified and enumerated in this report cannot be extrapolated to schools not selected for audit, nor can they be extrapolated within a school to

students or transactions not tested. Although the specific errors identified in the Audit are thereby limited, the findings are important in that they highlight potential risks to the accuracy of high school academic data and should inform the Department's ongoing efforts to enhance its data systems and internal controls, thus fortifying the integrity of that vital data.

This report includes 17 recommendations to address deficiencies identified at the audited schools and to improve the accuracy and reliability of high school academic data citywide.

The matters covered in this report, along with transaction-level findings by school and recommendations, were discussed with central Department officials, Clusters and Networks within the Office of School Support, and the audited schools so that, as a final stage of our internal audit process, action plans could be developed with each of the schools to address any deficiencies identified through the audit testing. Those action plans were reviewed by central Department officials. Examples from those action plans are noted in the conclusion of this report at p. 21, *infra*. The Department's central leadership has indicated its agreement with all of the report's recommendations.

The remainder of this report is organized thematically by the three audit areas: credit and exam accumulation and course crediting, Regents high school examination scoring, and student discharges, and by topic within the credit and exam accumulation and course crediting area. Recommendations specific to one of the three audit areas are included after the findings for each of those audit areas. General recommendations that cross audit areas are included after the student discharge recommendations at p. 20, *infra*.

IV. CREDIT AND EXAM ACCUMULATION AND COURSE CREDITING

The requirements for earning a New York State high school diploma are set by the New York State Education Department ("SED") and can be found in Part 100.5 of the New York Codes, Rules and Regulations. These requirements specify the requisite course credits and assessments for each type of diploma (Regents, Local).³ The Regents High School examination ("exam")

³ New York State diploma requirements are available at <http://www.emsc.nysed.gov/ciai/gradreq/intro.html>; the Department's graduation requirements are available at <http://schools.nyc.gov/NR/rdonlyres/53FADF0D-D784-435E-8675-90E20624DAE1/0/2011GenEd.pdf>.

requirements for the local diploma vary based upon the year in which students first enter grade nine and their special education status.⁴

For the classes of 2009 and 2010, in addition to passing exams in at least five subject areas, students must earn 22 units (44 credits) to graduate.⁵ Schools are required to certify that a student has met all graduation requirements prior to issuing a diploma. To fulfill that responsibility, schools should review each student’s cumulative record, STARS official transcript, and any other pertinent records.

By way of further explanation and caveat, we note that while most high schools are now using the Department’s Student Transcript and Academic Recording System (“STARS”) as their primary system for tracking Regents examinations and course credits, we know from past external audits, internal reviews and monitoring that some high schools use STARS in more limited ways, and/or maintain records using their own systems, and/or maintain paper transcripts for students who transfer from outside the system without entering the credits previously earned into STARS. Because STARS may not have captured the students’ full academic history, it may still appear that they are lacking certain Regents or credits when that may not be the case. Accordingly, for purposes of this audit, we did not charge schools with an “error” based solely on what was entered into or omitted from STARS. Rather, in cases where STARS was incomplete, we accepted documentation in support of the schools’ graduation and crediting determinations. It is worthy of note that the significant automations implemented by the Department over the past several years in the area of tracking course credits and exams have allowed us to analyze and audit data that in the past would have been far more challenging to audit; this has vastly improved the Department’s ability to assess the schools’ academic data.

⁴ Students entering 9th grade in September 2007 must pass four of the five required Regents examinations with a score of 65 or above and pass one Regents examination with a score of 55 or above to earn a Local diploma. Students entering 9th grade in September 2006 must pass three of the five required Regents examinations with a score of 65 or above and two with a score of 55 or above to earn a Local diploma. In addition, eligible students with disabilities may earn a Local diploma through the safety net provision by scoring 55 or above on the five required Regents examinations and/or by passing Regents Competency Tests (RCTs).

⁵ NY State Commissioner’s Regulations require students to earn at least 22 units of credit. NYC public schools calculate credits towards graduation using a semester-based model, in which the State’s 22 unit of credit requirement is equated to 44 credits.

A. Regents Examinations and Academic Course Credit

Required Regents Examinations

To ascertain whether graduates had met exam requirements for a high school diploma, we analyzed exam data for 9,582 graduates in the audited schools from the 2010 cohort and reviewed 924 transcripts.⁶ Based on those analyses, 24 schools had no exam errors identified, and across the 53 audited schools, 817 transcripts did not have such an error. From the remaining 29 schools, we selected for further testing 107 transcripts that appeared to be missing exams and/or reflected exam scores that did not meet the diploma requirements. The sample comprised 84 students who received a Regents diploma and 23 students who received a Local diploma. Schools were asked to provide documentation verifying that students had taken and passed the sampled exam(s) with the score required for the awarded diploma.

For the 84 students who had initially received a Regents diploma, schools submitted sufficient records to confirm that 37 students had met all exam requirements for a Regents diploma. For 33 students at 13 schools, the evidence indicated that they had only met the exam requirements for a Local diploma; as for the remaining 14 students at seven schools, sufficient evidence was not submitted to show that they had passed the required exams to earn either a Regents or a Local diploma.

For the 23 students who had initially received a Local diploma, schools submitted sufficient records that confirmed that seven students had met all exam requirements for their diplomas. For the remaining 16 students in eight schools, sufficient evidence was not submitted to show that they had met the exam requirements for a Local diploma.⁷

⁶ The same 924 transcripts were reviewed for several of the tests described in this section of the report. Some of those transcripts were flagged as error-prone in one or more areas through data analysis. Others were selected judgmentally. However, all 924 transcripts selected were manually reviewed for any potential issues identifiable on the face of the transcript, leading to the selection of risk-based transactions for further testing. See Appendix for further methodological details.

⁷ The identification and testing of missing exam scores and/or exam scores that did not meet diploma requirements was also applied to the 2009 cohort. For that cohort, the primary selection criterion was data indicating missing exams. We sampled 45 students who graduated with a Local diploma but whose transcripts did not reflect passing scores for the required five exams or had one or more exams missing. For 25 of those 45 students (at 13 schools), sufficient evidence was not submitted to show that they had met the exam requirements for their Local diplomas. (*Cf.* 16 of 23 students from the 2010 cohort who graduated with a Local diploma and whose transcripts indicated an error.)

Table 1

Required Regents Examinations Testing Summary			
	Regents	Local	Total
2010 cohort - graduates	7,365	2,217	9,582
Transcripts reviewed	614	310	924
No exam error identified	530	287	817
Exam error resolved	37	7	44
Met only Local diploma exam requirements	33		33
Did not meet exam requirements for either diploma	14	16	30

Academic Course Credits

To graduate with a Regents or Local diploma, students are required to earn 44 credits, including eight credits in English, eight credits in social studies, six credits in mathematics, six credits in the sciences, two credits in a language other than English, and two credits in the arts. Science and social studies include specific course requirements needed to meet the required course credits in those areas.⁸ The remaining credits are fulfilled through health, physical education, and elective courses.

The Audit’s approach was to identify and test conditions where students’ transcripts appeared to be missing required course credits. For a student who graduated and whose transcript appeared to be missing a required course credit, schools were asked to provide documentation verifying that the student had earned the credit.

To execute this approach we analyzed STARS academic data for the 2010 cohort, which included 9,582 graduates in the audited schools, and the audit team manually reviewed 924 transcripts of students who had graduated. Based on those analyses, we found that 15 schools had no apparent missing academic course credits errors on their sampled transcripts and across all 53 audited schools, 684 of the 924 transcripts did not have such an error. For the remaining 38 schools, we selected for further testing 240 transcripts that appeared to be missing required academic course credits and/or missing courses within a prescribed sequence for social studies or science. All

⁸ Science requires at least two credits in Life Science and at least two in Physical Science; social studies requires four credits in Global History, two credits in United States History, one credit in Economics and one credit in Participation in Government.

affected schools were given detailed instructions and multiple opportunities to submit records that would resolve the issues identified.

Upon our review of the explanations and records submitted by the schools, 76 of the 240 transcripts tested for missing academic course credits or missing a course within a prescribed sequence were resolved through appropriate documentation.⁹ Five schools provided adequate documentation to clear all of the apparent errors for their sampled students for this test. At the remaining 33 schools, there were still 164 students for whom sufficient documentation to confirm that the students had taken and passed required academic courses had not been submitted. The results varied - one school had 35 affected students; nine schools had between five and 19 students; and, 23 schools had fewer than five students.

Table 2

Transcripts Missing Credits/Missing Course within Sequence	
2010 cohort - graduates	9582
Transcript reviewed	924
No academic course credit error identified	684
Transcript error resolved	76
Transcript error not resolved	164

The most common explanation offered for the unresolved errors was inadvertent omission. Not surprisingly, the subject area with the highest number of errors was social studies, due to the much more strictly defined sequence of required courses.

Credit Recovery

“Credit recovery” permits students to master learning outcomes and to make up credit after they have failed a course. In the spring of 2010, SED issued a new regulation outlining requirements for students making up course credits.¹⁰ The regulation specifies that students can make up credit

⁹ Among the reasons why a transcript appeared to be missing credits, when in fact the student had taken and passed the required course(s), were credits earned by students that were not recorded in STARS for college courses, summer courses, and courses taken at another non-NYC school.

¹⁰ According to the Commissioner’s Regulations (Part 100 Regulations, 100.5(d)(8))

- Make-up program must be aligned with applicable NY State learning standards; satisfactorily address students’ individual needs and course deficiencies; and ensure that students receive

for a failed class by repeating the course during the school year or during summer school, or by receiving intensive instruction in the student’s identified areas of deficiency in the course – this targeted, intensive instruction is known as “credit recovery”. According to the regulation, a school-based panel must review and approve a student’s participation in credit recovery, and all make-up courses or programs must be overseen by a teacher certified in the subject area for which the student is making up credit.

For School Year 2010-2011, the Department issued guidance to high schools on the new Regulation, and directed schools to designate credits awarded through credit recovery using specific codes in STARS.¹¹ The audit focused on reviewing the schools’ processes for approving a student’s participation in a credit recovery course in accordance with the Regulation. In other words, we assessed whether a school-based panel approved the student’s participation in a credit recovery program, and whether the program was taught or supervised by a licensed teacher in the appropriate subject area.¹²

In order to identify credit recovery courses, we analyzed STARS course codes for students enrolled in the 2010-11 school year in the audited schools (approximately 56,000 students). We sampled for testing 242 students whose course codes in STARS reflected credits awarded for credit recovery courses. Schools were given the opportunity to describe the credit recovery process they had in place and to provide documentation that the credit recovery course was taught

equivalent, intensive instruction in the applicable subject under the direction or supervision of a subject-certified teacher.

- A school-based panel, consisting of at least the principal, a teacher certified in the subject area for which the student must make up credit, and a guidance director or other administrator must approve the student’s participation in the make-up credit program.
- To receive credit, the student must successfully complete the make-up credit program and demonstrate mastery of the learning outcomes for the subject, including passing the Regents examination, if applicable.

¹¹ Credits designated in STARS as awarded through credit recovery accounted for 1.7 percent of all high school credits awarded in STARS from September 2010 through June 2011.

¹² We did not attempt to assess whether the schools’ credit recovery programs were: aligned with applicable NY State learning standards; satisfactorily addressed students’ individual needs and course deficiencies; ensured that students received equivalent, intensive instruction in the applicable subject; or whether the student demonstrated mastery of the learning outcomes for the subject. Those standards are subjective, and to audit them would have required reviewers to second-guess the educational judgment of school leaders, particularly because there is no guidance on how a school should document its consideration of NY State learning standards and students’ individual needs and course deficiencies. Recommendation 7 of this report, at p. 14, *infra*, would facilitate future monitoring and audit in this area.

or supervised by a teacher licensed in the relevant subject area. The audit found that schools met those requirements for 183 students, leaving 59 students for whom insufficient evidence was provided. In some instances, licensed teachers were identified but the audit issue was not resolved because the schools failed to provide information on the school-based panel. We also noted that when schools failed to provide satisfactory records for the credit recovery process, it was not always clear from the data and the schools' explanations that the course credit awarded was for a credit recovery course. For example, one school administrator indicated that the course was miscoded as credit recovery, instead of Regents exam preparation.

B. Other Part 100 Compliance Issues

Laboratory Requirements

For all science courses that have an associated Regents examination, a student must complete 1,200 minutes of hands-on (not simulated) laboratory ("lab") experience in addition to the classroom instruction required to earn course credit (180 minutes per week throughout the school year or the equivalent). To ascertain whether students had met those requirements, we reviewed 924 transcripts and from that review identified 215 instances where it appeared that students had taken science courses that culminated in a Regents examination without completing the lab requirements.

Schools were able to provide documentation demonstrating that the lab requirements had been met for 183 of those 215 students.¹³ Twenty schools provided adequate documentation for all their tested students. As to the remaining schools, there were 32 students for whom documentation was not submitted or was not sufficient. One school had 15 students affected and ten schools had fewer than five students affected. Some of the explanations offered by the schools for unresolved lab requirement errors were that they had failed to program the student for lab, or that the courses had been taken under a prior school administration and they were not responsible for the error.¹⁴

¹³ Acceptable records for confirming that students met lab requirements were master schedules showing the student's lab period, teacher's grade book and/or other course records that demonstrate the student's successful completion of lab.

¹⁴ An additional 45 transcripts were reviewed from the 2009 cohort and four students were selected for testing. Evidence supporting lab requirements was obtained for all but one student.

Table 3

Lab Requirements Testing Summary	
2010 cohort - graduates	9,582
Transcripts reviewed	924
No lab requirements error identified	709
Lab requirements error resolved	183
Lab requirements error not resolved	32

Credits in Physical Education and Health

Students are required to earn four credits in physical education and one credit in health (collectively, “PE”) to graduate with a Regents or Local diploma. Students must take PE every year that they are in high school. SED regulations provide an exception to the PE requirement when a student has met all other graduation requirements in fewer than four years, in which case the student may graduate without having met the remaining PE credits they would otherwise need to earn. In identifying which students did not meet the PE course credits requirement, we followed the same procedures used to identify students who appeared to be missing the required credits in academic subjects. After analyzing STARS data for the 9,582 graduates in the 2010 cohort at the audited schools and reviewing the 924 selected transcripts, 22 schools had no missing PE identified for their student transcripts and across the 53 audited schools, 723 transcripts had no missing PE identified. As to the remaining 31 schools, 201 graduates who appeared to be missing PE credits were selected for further testing.

Schools were able to provide satisfactory documentation for 47 of the 201 students. As to the remaining 154 students, we did not receive conclusive evidence to confirm that the students met the required number of credits in PE.¹⁵ Two schools had 20 or more students affected; six schools had five to 19 students affected; and 16 schools had fewer than five students affected.

The deficiencies identified through the audit and interviews with the school administrators highlighted school administrators’ misunderstanding of PE requirements. Several principals believed they had the authority to waive the PE requirement for individual students, *e.g.*, in cases of documented injury or medical conditions. Other principals believed that any student (rather

¹⁵ An additional ten students at four schools were identified from the 2009 cohort as missing PE credits and selected for testing. At the end of the audit, we had not received adequate records to resolve the PE credit issue for nine students at three schools.

than just those graduating early) who met all other requirements could graduate, hence, a student should not have to stay in school merely to complete PE credits. One principal believed that because the school did not have a gymnasium, the school could not provide PE. Many principals were also confused about the number of credits that should be attached to their PE courses. See also “Credit value awarded for course,” p. 13, *infra*.

Table 4

Required Credits in Physical Education/Health Testing Summary	
2010 cohort - graduates	9,582
Transcripts reviewed	924
No PE Error Identified	723
PE Error Resolved	47
PE Error Not Resolved	154

C. Other Course and Crediting Issues

Another objective of the Audit was the review of processes and practices around areas that may not be readily quantifiable or tie directly to graduation requirements, but which are important to ensuring clear, consistent and accurate academic data, and which can in some cases also impact the quality of education that students receive. Therefore, in addition to tests of whether graduates had met SED credit and exam requirements for a Regents or Local diploma, we asked schools to explain the following types of issues identified through transcript reviews. The issues below include examples of misapplication of policies, poor control over data entries, and weak record retention practices (*e.g.*, failure to retain records describing course content [syllabi]) that illuminate areas where enhanced training and internal controls, policy clarifications, and/or further review are warranted. Some of these inquiries related to students who had graduated, and some related to students still enrolled. None of the issues in this section entailed assessments of whether the students met graduation requirements. Because the Department’s guidance around the types of records schools should be creating and maintaining to permit monitoring and audit of these areas was in many cases inadequate or unclear, we elected to conduct qualitative rather than quantitative testing in these areas. Accordingly, the findings below are described rather than enumerated.

Credit value awarded for courses

Principals are responsible for awarding course credit in accordance with New York State Commissioner's Regulations, which specify that a unit of credit is earned by the mastery of the learning outcomes set forth in a New York State-developed or locally-developed syllabus for a given high school subject after a student has had the opportunity to complete a unit of study, *i.e.*, at least 180 minutes of instruction per week throughout the school year, or the equivalent. In order to assess school administrators' basis for determining how much credit to award for a particular course, the audit team requested written explanations in support of courses that had atypical credit values or for courses that, by their title on a transcript, potentially should not bear credit (*e.g.*, science laboratory).

Applications of schools' annualization policies, which were consistent with the guidelines for awarding credits, legitimately explained many of the questions we put to schools about credit value.¹⁶ Other acceptable explanations were credits awarded for "credit by examination," a provision of SED regulations that allows students who are academically ready to earn course credits without completing a course of study if they score 85 or above on the Regents examination in the corresponding subject area, and complete a special project. However, we also found schools that mistakenly awarded credits for non-credit-bearing courses (*e.g.*, resource room or Regents exam preparation), or that awarded additional credit beyond the appropriate credit value for a course (*e.g.*, awarding additional credit because the course met for additional time). We also found schools that incorrectly implemented the fractional credit policy for physical education classes.¹⁷

¹⁶ Annualized programming is designed as a ten-month learning program, where a course's syllabus, scope and sequence, lesson plans, and assessments reflect a ten-month cycle (usually with the same teacher and students). In an annualized course, it is possible for a student to fail the first semester but still ultimately earn two credits for the course by bringing up his or her ten-month average to a passing grade in the second semester.

¹⁷ Physical Education credit requirements can be met through two program models. In one model, students alternately receive PE instruction 2 or 3 periods per week every semester (one semester for 2 periods per week, the other for 3 periods per week), where each semester is worth 0.5 credits, or for a comparable time each semester if the school is organized in other patterns. In the other model, students receive PE instruction 5 days per week for 7 semesters, where each semester is worth .58 credits.

Previously received credit

STARS was designed to facilitate schools' scheduling of students into classes, to track credits earned and Regents examinations taken and passed, and to generate students' transcripts. During the manual review of transcripts it became apparent that some schools were either miscoding the courses entered in STARS or awarding credits for courses that students had previously passed.

The audit inquiry in this area confirmed that many of the errors were essentially clerical, in that the same course titles and/or codes were used in STARS for two or more distinct courses. In other cases, schools explained that students were registered for the same course in preparation for a Regents examination, which is not in itself inappropriate, but those schools should not have awarded credit again.

Questions about course content

In analyzing transcripts, reviewers identified courses that had "CR" as the grade and were missing the name of the teacher, and courses whose titles did not sufficiently illuminate the nature of the course or did not appear to align clearly with subject area content or sequencing standards (*e.g.*, a course recorded under social studies and titled "College Prep 12" was questioned because it was difficult to ascertain the course content from its title).

Upon review, we found that a significant number of the "CR" graded courses reflected transfer credits awarded for courses taken at a school outside the New York City Department of Education. Other "CR" graded courses reflected legitimate awarding of credit as permitted by regulations, such as credits-by-examination. Some schools acknowledged that certain courses should not bear credits, but indicated that the courses in question were not counted to meet the required 44 credits for graduation. In reviewing the documentation submitted by the schools, such as syllabi and curriculum maps, reviewers also raised concerns about course content not covering sufficient commencement level material. Those courses have been identified and were forwarded to the school and Network to support school curriculum development and reviews where warranted.

Transcript updates

We reviewed controls around transcript updates – *e.g.*, changes in students' course grades - that were made to academic data more than one semester after the initial grade entry. Schools were asked for explanations of such changes. There were many credible, documented reasons for transcript updates, such as grade changes due to a school's annualization policy, correction of data

entry errors, and adding transfer credits for courses taken before the student registered in a Department school. But we also identified transcript updates that were the result of a misapplication of policies, such as incorrectly incorporating Regents examination scores into the final course grade.¹⁸ Another transcript update concern we identified was the misuse of the transcript update function to change a course grade from “fail” to “pass” based on the student’s completion of a credit recovery program, instead of recording the credit recovery program as a separate course on a student’s transcript, as required.

Credit and Exam Accumulation and Course Crediting Recommendations:

1. Formalize the use of STARS to record all required credits and Regents examinations for graduation, including transfer credits, summer school credits, and early college credits.
2. Continue enhancing training in the proper use of STARS and offer technical support.
3. Standardize course coding in STARS to facilitate alignment of courses taken and credits earned with State and local graduation requirements and crediting policies.
4. Consider feasibility and timeline for enhancements to STARS:
 - a. Generate an automatic warning or preclude certification for graduation where transcript does not meet graduation requirements (with customization or Central override for any authorized exceptions, *e.g.*, Portfolio schools);
 - b. Generate reports at any time during a student's academic career indicating remaining requirements for graduation, and subjects where a student may be behind track for graduation;
 - c. Block assignment of credit for non-credit-bearing courses and preclude the awarding of multiple credits for the same course as appropriate.
5. The prevalence of non-compliance around PE requirements at our audited high schools, coupled with the findings reported by the New York City Comptroller upon an audit of elementary school compliance with PE requirements,¹⁹ point to a need to enhance principal training, continue to provide school support, increase communication and clarify policies citywide.
 - a. Enhance monitoring of PE requirements;

¹⁸ For students who complete a course of study culminating in a Regents exam, the Regents exam may not be the only reason a student passes or fails a course, per the [NYSED School Administrator’s Manual](#).

¹⁹ “Audit Report on the Department of Education’s Compliance with the Physical Education Regulations in Elementary Schools.” MD11-083A. October 4, 2011.

- b. Enhance principal training on PE requirements, while continuing to provide technical assistance and curriculum support for all schools;
 - c. Continue to provide teacher training on PE, including curriculum development and use of non-traditional space for physical education;
 - d. Provide additional guidance about PE requirements and policy, STARS coding and available supports; and,
 - e. Continue to provide support and technical assistance to schools that may not have traditional gym facilities to help them identify options for providing students with PE.
6. Clarify and reinforce retention requirement for documentation of course content (syllabi).
7. Issue policy guidance on credit recovery documentation to demonstrate compliance with School-Based Panel approval process and certified teacher requirement, and to document appropriate consideration of learning standards at Panel approval and at final teacher review for awarding credit; include samples, templates and/or checklists to facilitate compliance.
8. Consider requiring outside approval for transcript updates from fail to pass occurring more than one semester after initial entry of a failing grade.
9. Networks should support audited schools in implementing action plans that address school-level issues identified during the audit.
10. To the extent that correction of deficient practices in any school will impact still-enrolled students, schools, Networks and Central should provide support and technical assistance to ensure still-enrolled students have a clear path to graduation.

V. REGENTS HIGH SCHOOL EXAMINATION SCORING

General education students must pass Regents High School examinations in at least five subject areas to receive a diploma: Comprehensive English, Global History and Geography, U.S. History and Government, one life or physical science, and one math Regents. Student results on Regents examinations in all subjects contribute to a school's Progress Report grade, which evaluates both the rate at which students complete examinations in the required subjects and the pass rate on all examinations taken during the school year. Results on the English and math Regents examinations also contribute to a school's New York State differentiated accountability status, which evaluates whether the percentage of students in the four-year graduating cohort earning passing scores increases from year to year.

Most Regents examinations are structured as follows:

- A multiple-choice section (Part I), which is usually between 30 to 50 questions, and,
- A long-answer/essay (“open response”) section (Part II), which consists of either a selection of detailed questions for which the work must be shown, or a set of essay topics, which require written discussion.

The open response portions of the exams are scored by New York City teachers according to the rubric developed by New York State. Because open response scoring requires educators to exercise professional judgment, there is an expectation that there will be some degree of variability in the points different raters would assign for the same open response answer. However, through appropriate training, proper application of rubrics and scoring protocols, variability should be minimized.

In order to gauge the accuracy of schools’ scoring of the sampled exams, students’ responses on the open response portions of the June 2011 Regents examinations²⁰ in selected subject areas were identified for re-scoring by teachers certified in the sampled subject area.²¹ Raters were trained in the use of scoring keys and rating guides published by the State. The training also included a discussion of best practices to ensure that the raters had a comprehensive understanding of the rubrics. Scores were recorded on answer documents that were scanned in order to capture re-scored responses accurately and automatically calculate the scale score. There was a total of 4,780 exams re-scored in six subjects.²²

²⁰ It should be noted that the June 2011 Regents examinations that are the subject of this audit were part of the first administration following a significant policy change by SED in this area. For more than a decade, SED regulations had required schools to reread science and math Regents examinations with a score within five points of a passing grade. That regulation reflected a policy that no student should fail to graduate because of a possible scoring error. SED announced a policy change in May 2011 that prohibited schools from rescoring Regents examinations, in recognition that the policy, in practice, had encouraged schools to find points to push students over the pass-fail threshold and thereby help students graduate. The Department strongly supported this policy change.

²¹ Approximately 60 percent of the exams selected for rescoring were taken from exams with a final score between 65 and 69, thereby weighting the sample to exams with higher risk of overscoring. See Appendix for further methodological details.

²² The audit did not include re-scoring of multiple choice questions because that section is graded by scanner, thereby eliminating the risk of answers being scored and/or totaled incorrectly.

In analyzing the results of the re-scoring efforts, we concentrated on exams that received a passing score (65 or above) from the school and were rescored as failing in the audit. First, a standard deviation²³ was calculated for each exam subject using all re-scored exams. We subtracted the original exam score from its re-score and normalized those results by converting them to standard scores (z-scores).²⁴ Using the standard scores for only the exams that received a passing score (65 or above) from the school and were rescored as failing in the audit, the mean for each exam subject rescored for a school was calculated to determine whether the school's scoring of the subject was within an acceptable range of one standard deviation.

Of the 60 schools tested, 46 had no subjects assessed to be outside an acceptable range of scoring variability among students whose examination grade dropped from passing to failing upon independent rescoring. Ten schools had one subject assessed to be outside an acceptable range of scoring variability among students whose examination grade dropped from passing to failing upon independent rescoring. An additional four schools had multiple subjects assessed to be outside an acceptable range of scoring variability among students whose examination grade dropped from passing to failing upon independent rescoring.

The 14 schools that had exam subjects assessed to be outside an acceptable range of scoring variability among students whose examination grade dropped from passing to failing upon independent rescoring were selected for an additional review of their exams' open responses to determine qualitative reasons why discrepancies between the original score and the re-score occurred. In some limited instances, we found that the original scorer had awarded full or partial credit for blank answers, unintelligible answers, or answers that merely repeated the "prompt" from the test question. Those instances have been referred to the Special Commissioner of Investigation. In other instances, the original scorer had awarded credit in a manner inconsistent with the State's rubric.

We note that many of the remaining 46 schools had pass-to-fail re-score differences on individual exams, but their average pass-to-fail re-score difference for the subject areas fell within the range

²³ Standard deviation shows how much variation or "dispersion" there is from the average (mean, or expected value). A low standard deviation means that the data points tend to be very close to the mean, whereas high standard deviation means that the data points are spread out over a large range of values.

²⁴ A standard score refers to how many standard deviations an observation or datum is above or below the mean. It is a dimensionless quantity derived by subtracting the population mean from an individual raw score and then dividing the difference by the population standard deviation.

established to account for scorer variability. However, the re-score differences still illuminated the need for additional training in proper application of rubrics, and correct application of scoring protocols.

Regents High School Examination Scoring Recommendations:

11. Consider off-site or monitored scoring of future Regents examination administrations for schools with material overscoring on one or more exams.
12. Enhance training on application of rubrics.
13. Phase in system wide shift to “no-vested-interest scoring,” *i.e.*, use of raters who are not affiliated with the school whose students’ exams are being scored.

VI. STUDENT DISCHARGES

As explained in the detailed scope and methodology appendix of this report, the Audit targeted students who had been discharged with an ATS discharge Code 11, because the accuracy of student discharge reporting by high schools is reflected in the calculation of high school graduation rates, as well as the calculation of several academic accountability measures on the Department’s High School Progress Reports.

Using Code 11 discharge entries effectuated from September 2006 through August 2010, we sampled 2,322 students: 1,865 students whose discharge records showed that the student moved within the United States and 457 students whose records indicated that they moved outside of the United States. For those students who remained in the United States, schools were able to provide satisfactory documentation for 1,614. For the remaining 251 students, schools had updated ATS with the required information, but they failed to provide adequate records evidencing the source of the information recorded in ATS. For those students who moved outside the USA, schools had appropriate records for 382 students, but lacked adequate documentation for 75.

A separate sample of 190 students was selected from the Code 11 discharge entries effectuated in school year 2010-2011, the first full year after the Department amended its guidance to schools to align with SED’s more stringent documentation requirements.²⁵ We sampled 148 students whose

²⁵ We note here that the Department has raised concerns about the fairness of the State’s discharge documentation requirements, to the extent they hold schools accountable for students who cannot reasonably be targeted for attendance intervention and dropout prevention outreach. Under the State’s requirements, individual schools and the school district are charged with a dropout even where students and families leave the City or leave the United States without providing the school with any notification, a

discharge records showed the student moved within the United States and 42 students whose records indicated they moved outside of the United States. Schools were able to provide satisfactory records for 83 of the students who remained in the United States, while 65 fell short of the documentation standard. For students moving outside the United States, 29 transactions met and 13 fell short of the documentation standard.

In total, the audit identified 404 students in 45 schools who were discharged without adequate supporting documentation to meet the applicable audit standard. Six schools had 20 or more affected students; 24 schools had between five and 19 affected students; 15 schools had fewer than five affected students; and 10 schools had no students affected.

For tested Code 11 transactions that were not adequately documented in accordance with the applicable documentation standard, the Department is centrally updating the students' discharge codes in its student information database to return those students to the cohort and those changes have been incorporated into schools' 2010-11 Progress Report results; data updates were also submitted to SED for State accountability measures. Those changes will have no impact on the individual students, who either did or did not graduate from another school outside of the Department, but they may impact the schools' four-year and six-year graduation rates, as well as their Progress Report scores for School Years 2010-2011, 2011-2012 and 2012-2013.

Student Discharges Recommendations:

14. Change unsupported Code 11 discharges to Code 11-X dropouts.
15. Reinforce updated documentation requirements and continue monitoring/auditing compliance.

General Recommendations not Specific to One Audit Area:

16. Reinforce records retention requirements.
17. When there is a change in school leadership, the Network should work with the outgoing and incoming principals to ensure that the academic and student record files are maintained and available to the new administration.

forwarding address or telephone number, or information about the student's future education plans outside of New York City. The Department's internal guidelines historically permitted a Code 11 discharge to be validated through an attendance investigation confirming, through home visits and interviews of neighbors or relatives, that the family had moved out of the City.

VII. CONCLUSION

As a final stage of the audit process, schools were asked to work with their Networks to prepare action plans addressing the issues identified by the audit. Those plans were reviewed by central offices, which offered recommended edits. Following are examples of the action plans' proposed solutions.

- *Missing exam*: The school plans to strengthen its protocols around scheduling and preparing students for needed exams, including designating specific dates for reviewing students' transcripts. Upon that review, students who are missing exams will be offered non-credit bearing Regents preparation tutoring and scheduled to take the missing exams.
- *Missing credit*: Training in using course codes and awarding credits will be provided to programming and administrative staff. Transcripts will be reviewed at least twice yearly by relevant staff. Students and parents will be informed of needed credits and involved in developing plans to make up any shortfalls in the accumulation of credits. Additional courses and credit recovery will be added during the school year and summer to ensure that students remain on track to graduate.
- *Missing laboratory ("lab")*: Monthly meetings will be held with science teachers to discuss the students' progress toward lab completion. Lab make-up sessions will be held before and after the school day to allow students to make up missed lab sessions. All science teachers will be required to submit a completed "lab audit" form providing verification that students have met the NYS lab requirements and are eligible to sit for the Regents examination.
- *Credit recovery*: In addition to following the NY State regulation on make-up credit, guidance staff will identify students who may be eligible for credit recovery based on their course grades as an initial step. A subject-certified teacher will assign students to an approved credit recovery course that covers content materials they had not mastered. The subject committee will meet regularly to assess students' progress and will be responsible for signing-off on the final test taken in the subject area. The school administrator will review the committee's decision and have final authority to assign credit.
- *Code 11 discharges missing supporting documentation*: School staff with responsibility to process student discharges have been provided with the latest version of the Transfer, Discharge and Graduation guideline so they can familiarize themselves with the requirements. A school staff will be assigned to review the documentation supporting a student's discharge to ascertain whether it meets the standards identified as guidance in

this area, and track any further documentation needed. The Network will continue to monitor student discharges.

Given the data-driven, risk-based school selections and transaction sampling, it was not surprising that the Audit identified errors in high school academic data at the schools and in the areas that were tested. The Audit met its primary objective of identifying practices and control weaknesses around high school academic data within and across the audited schools that can help the Department to enhance training, communication and guidance for staff at all New York City high schools, and to identify areas where central policies and protocols need to be enhanced or clarified. We hope and believe that the Audit and this report of findings and recommendations will facilitate that important work, which should lead to improved data accuracy in schools and enhanced confidence for all of the system's key stakeholders in the data used to measure the success of students, educators and schools.

APPENDIX

Audit Scope and Methodology

The audit scope for credit and exam accumulation and course crediting covered the classes of 2009 and 2010, which include students who entered a New York City public high school on or after September 1, 2005, and graduated by August 31, 2009 and August 31, 2010, respectively, as well as students who were enrolled during the audit period. The audit scope for student discharges covered students who entered a New York City public high school as part of the class of 2010 or 2011 and were discharged with a Code 11 between September 2006 and April 2011. The Regents high school examination scoring tests covered students enrolled during the audit period who took a Regents examination in the June 2011 administration.

The Department designed a school selection methodology that focused on troubling school data patterns in the following areas: credit and exam accumulation and course crediting, student discharges, and Regents examination scoring. The Department selected metrics in each focus area based on risk assessments. Approximately half the schools in the sample were selected based on their rank in one of the three focus areas; the remaining schools were selected based on their rank across focus areas, weighted by other risk factors.

We examined academic data for all 460 high schools and applied a selection process that was blind as to school name, school size, principal and school history. The number of schools per Children First Network (“Network”) was capped to ensure adequate resources to support schools throughout the process. Phase-out schools and schools known to be under active investigation for academic/performance-data misconduct at the time of selection were excluded. The selection methodology resulted in a sample of 60²⁶ schools that is representative of the focus areas, and that is well-distributed both geographically and by Network.

In the 55 selected schools in which credit and exam accumulation and course crediting were tested,²⁷ we judgmentally selected graduates from the classes of 2009 and 2010 for transcript

²⁶ Five out of the 60 schools were selected only for the Regents exam component of the audit.

²⁷ During the results analysis phase of the audit, one of the 55 selected schools was removed from our summary audit results tables because the school operates, as it has for several decades, under a unique instructional and programming model. Because the school’s academic programming was tracked almost entirely outside the STARS system and could not readily be cross-referenced to SED graduation requirements by the reviewers, we assessed it to be essentially un-auditable under the standards applied in this audit. We saw no evidence of corrupt intent with respect to this school, but have referred it to the

reviews and follow-up testing to assess whether students certified for Regents or Local diplomas were awarded diplomas in accordance with applicable SED graduation requirements. We also selected a sample of students currently enrolled at the time of selection to review documentation of schools' credit recovery processes.

The selection relied on data analysis and reviewers' assessments of transcript information input by schools into the Department's Student Transcript and Academic Recording System (STARS). Such selection steered the sample for all audit tests we performed toward transactions with a high risk of error.

The audit also included tests for students discharged under ATS Code 11 and rescoring of Regents examinations. A detailed audit methodology is described below.

School Selection

The universe of schools subject to the audit was defined by ranking all high schools on metrics²⁸ identified for credit and exam accumulation and course crediting, Regents examination scoring, and student discharges. The metrics were weighted based on risk assessments and cutoffs were applied across the metrics to limit the universe to schools with the highest risk. Schools were ranked using a weighted composite score within each focus area based on the schools' metrics.

The top ten unique schools in each focus area were selected (30 schools), based on metrics only. The next 25 schools with the highest composite score ranking across two or three areas, weighted by triggers,²⁹ were selected. The number of schools per Network was capped at four to ensure adequate resources to support schools throughout the process, and eleven schools were removed due to phase-out status, ongoing investigations, or the Network cap; each removed school was replaced with the next ranked school on the list. Five additional schools were selected based on a

Department's senior leadership for an intensive review of the school's instructional model and its student academic records and for the development of a plan to document program and academic policies and strengthen record keeping in STARS. One school did not have a graduating class at the time of the audit and therefore all audit tests related to graduates did not apply.

²⁸ Metrics are quantitative measures that come directly from school data (*e.g.*, year-over-year increase in English Regents scores).

²⁹ Triggers are qualitative data elements that might indicate an increased incentive to falsify data (*e.g.*, school received a performance-data-triggered bonus).

Regents over-scoring metric for inclusion in the Regents high school examination scoring component of the audit only.

Transaction Selection: Credit and Exam Accumulation and Course Crediting

As an initial step, in order to determine which students' transcripts should be subject to review, we analyzed STARS data on courses and Regents examinations for the 2010 cohort to identify students who had fewer than the required credits in each subject (English, Science, Social Studies, Mathematics, Languages Other than English, Arts, Physical Education and Health) and/or fewer than five Regents examinations with passing scores. The data analysis, which encompasses data for 9,582 graduates across 53 schools, identified 1,117 students who were lacking credits and/or Regents examinations in STARS. Subject to school-level transaction caps and floors,³⁰ a sample of 345 student transcripts were analyzed by reviewers to confirm whether credits and/or exams were missing and, if so, to identify the missing subject and/or course. The audit also included the review of an additional 579 student transcripts in order to capture potential issues not identified through the STARS data analysis and to reach a meaningful sample size at each audited school.

The reviewers, most of whom were former principals, assistant principals or guidance counselors, were trained in the different areas covered by the audit and charged with thoroughly reviewing each sampled transcript, not only to confirm the issues raised through the data analysis (*e.g.*, missing course credits), but to identify other potential issues that were identifiable on the face of that transcript. For example, during the review of a sampled student transcript apparently missing a particular course credit, a reviewer might also identify that a different course may appear to have been taken and passed twice for credit, that a credit appeared to have been awarded for what should have been a non-credit-bearing course, or that an inappropriate credit value appeared to have been awarded for a course. In some instances, the reviewers may not have been able to identify the content of a course from a course code or title. Through the review process, we arrived at a varied sample of crediting issues, ranging from clear and material errors such as graduating students without required credits or Regents examinations, to clerical coding errors, to more subjective questions about credit values or course content.

³⁰ In an effort to create a manageable sample size, we capped at approximately 200 the number of transactions in the credit and exam accumulation and course crediting area of the audit. Therefore, at some larger schools there were transcripts that data analysis flagged as potentially missing required credits or exams that were not included in the audit sample. Additionally, to facilitate a meaningful review at each school in each audited area, we supplemented the sample for manual transcript analysis with transcripts that were not flagged as missing credits or Regents exams.

As with the data analysis that drove the risk-based school selection and transcript selection, the transcript reviews focused the audit sample in a way that likely would result in the highest identification of risk, the highest identification of error, and the highest identification of deficiency.

In addition to the tests performed on sampled graduates from the classes of 2009 and 2010, we judgmentally selected still-enrolled students to test compliance with the requirements promulgated by the SED beginning in school year 2010-2011 for awarding make-up credit (“credit recovery”) and to assess schools’ processes around making transcript updates to change course grades or add courses more than a semester after the course was taken. The sample selected from STARS was weighted toward including students with the highest number of credits awarded through “credit recovery” or changes to course grades well after the course appeared to have been taken.

Transaction Selection: Student Discharges

When a student leaves the NYC school system to enroll elsewhere or leaves the country, the student is said to have been discharged from NYC public schools and the student is removed from the school’s cohort, thereby impacting the school’s graduation rate calculation and other performance measurements. In light of the risk that students may not have been properly coded by the school upon discharge, the audit focused on students who were discharged with ATS Code 11.³¹

Instructions to schools about documenting Code 11 discharges are published in the Department’s Transfer, Discharge and Graduation (“TDG”) guidelines. The TDG guidelines were updated during school year 2009-2010, requiring for the first time that schools obtain confirmation that students - who had not moved outside the United States - had enrolled in another school. Because the new guidance and training around its implementation occurred during that school year, the audit tested whether the school had appropriate documentation that the student had left the NYC public school system in school years 2005-2006 through 2009-2010. For discharges in 2010-2011

³¹ This code is used for students who have left New York City and are currently residing elsewhere. For students who moved outside the United States, only the confirmation of the departure, and city and country of the new location are required.

where the student moved within the United States, the audit tested whether the school had obtained confirmation of student enrollment in a new school to support the Code 11 discharge.

In sampling the number of Code 11 discharges to test, we selected a maximum of 100 per school; all Code 11 discharges were tested if the school had fewer than 100 across the 2010 and 2011 cohorts.

Transaction Selection: Regent High School Examination Scoring

For the Regents component of the audit, the number of exam subjects that were selected for audit was determined as follows:

- Three subjects if the school was selected due to its high risk rank on the Regents component of the audit;
- Two subjects if the school was selected based on its rankings in the Regents metrics and additional focus areas (credit and exam accumulation and course crediting and/or student discharges);
- One subject if the school was selected based on its rankings in the credits and/or student discharge metrics.

In determining which specific subjects to select for rescoring for each school,³² we calculated the ratio of the number of exams with a score of 65 to the number of exams with a score between 58 and 64. The subjects with the highest ratio were selected.

If the subject(s) selected for audit had fewer than 25 exams, all exams were selected for the audit. Otherwise, the number of exams to audit was calculated by selecting 30 percent of exams in each sampled subject area with a minimum sample size of 25 exams and a maximum of 100. Using the calculated sample size, 60 percent of the exams were selected randomly from exams with a final score between 65 and 69 and 40 percent were selected from all other exams.³³ A sampled exam was replaced with another selection from the same category (*e.g.*, 65-69) if the answer document was not available or it was completed in an alternate language.

³² Portfolio schools were only audited in Comprehensive English.

³³ If the number of exams that fell into the 65-69 range did not make up 60% of the sample, additional students in the 55-59 score range were randomly selected to reach the 60%. If the number of exams in the ranges of 65-69 and 55-59 did not make up the 60% of the sample, the balance of exams was selected randomly. The remaining 40% of exams were selected randomly and excluded those score ranges that made up the 60% (*i.e.*, those with grades 65-69 and 55-59 if that group was sampled).