

Pennsylvania Statewide Transfer and Articulation System Uniform Standards for Credit for Prior Learning Exams

Mathematics Exams

Table of Contents

Introduction.....	2
Uniform Standard Minimum Scores for Awarding Academic Credit	2
Mathematics	3
Advanced Placement (AP) Exams	3
AP Calculus AB	3
AP Calculus BC	3
AP Statistics	4
College Level Examination Program (CLEP) Exams.....	4
College Algebra.....	4
Precalculus.....	4
Calculus.....	5
College Mathematics.....	5

Introduction

In 2017 the Pennsylvania general assembly enacted legislation adding a section to the Pennsylvania Public School Code, 24 P.S. § 20-2004-C(d), requiring public institutions of higher education to:

- (1) Adopt and make public uniform standards for determining academic credit for prior learning as outlined in paragraph (4) within 18 months of the effective date of this subsection.
- (2) Agree to award academic credit for prior learning, which is determined to meet the standards established under section 2004-C(c)(6) and apply the credit toward graduation, unless prohibited by external accreditation or licensure.

This document establishes the uniform standard minimum scores for which all PA Transfer System participating institutions will award academic credit pursuant to 24 P.S. § 20-2004-C(d).

During the standard setting process, committees of faculty and personnel from Transfer System institutions developed minimum score standards for which any participating member of the PA College Transfer System will award credit, as well as additional guidance and recommendations for courses that institutions may offer as equivalencies for exam scores at or above the minimum. The course equivalency recommendations are considered guidance by the Oversight Committee and may vary between institutions in accordance with their course catalog and program design.

Uniform Standard Minimum Scores for Awarding Academic Credit

Exam	Minimum Score to Receive Credit
AP Exams	
AP Calculus AB	3
AP Calculus BC	3
AP Statistics	3
CLEP Exams	
College Algebra	50
Precalculus	50
Calculus	50
College Mathematics	50

Mathematics

Advanced Placement (AP) Exams

AP Calculus AB

AP Calculus AB is a course that covers the foundational concepts in first semester calculus. The topics include limits, differentiation, integration, the fundamental theorem of calculus and applications of each of these. Students approach calculus topics graphically, algebraically and numerically.

Minimum Score

Credit will be awarded for a score of 3 or higher.

Rationale

This standard is in line with College Board and American Council on Education's minimum score recommendations <https://aphighered.collegeboard.org/setting-credit-placement-policy/credit-granting-recommendations>.

Additional Credit & Course Equivalency Guidance

For individuals with a score of 3, award credit for an applied calculus course. Some schools do not have such a course; therefore, the decision really needs to be at the institution level as to how the course is accepted. For schools without an applied calculus course mathematics elective credit is an alternative requirement that all institutions should be able to accept.

For individuals with a score of 4 or 5, award credit for Calculus I.

AP Calculus BC

AP Calculus BC is a course that covers the same foundational concepts in the AP Calculus AB course listed above and additionally the topic of series. It extends the content learned in AB to different types of equations (polar, parametric, vector-valued) and new topics (such as Euler's method, integration by parts, partial fraction decomposition, and improper integrals), and introduces the topic of sequences and series. The AP course covers topics in differential and integral calculus, including concepts and skills of limits, derivatives, definite integrals, the Fundamental Theorem of Calculus, and series. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations.

Minimum Score

Credit will be awarded for a score of 3 or higher.

Rationale

This standard is in line with College Board and American Council on Education's minimum score recommendations <https://aphighered.collegeboard.org/setting-credit-placement-policy/credit-granting-recommendations>.

Additional Credit & Course Equivalency Guidance

For individuals with a score of 3, award credit for Calculus I.

For individuals with a score of 4 or 5, award credit for both Calculus I and Calculus II.

AP Statistics

The AP course is designed to be the equivalent of a one-semester, introductory college course in statistics. The course introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students are exposed to four broad conceptual themes. The first is descriptive statistics and exploring data. This includes describing patterns and departures from patterns. The second is sampling and experimentation. This includes addressing issues in planning and conducting a study. The third is probability and exploring random phenomena using probability and simulation. The last is statistical inference which includes estimating population parameters and testing hypotheses.

Minimum Score

Credit will be awarded for a score of 3 or higher.

Rationale

This standard is in line with College Board and American Council on Education's minimum score recommendations <https://aphighered.collegeboard.org/setting-credit-placement-policy/credit-granting-recommendations>.

Additional Credit & Course Equivalency Guidance

Award credit for an appropriate introductory 3-credit statistics course.

College Level Examination Program (CLEP) Exams

College Algebra

The College Algebra exam covers material that is usually taught in a one-semester college course in algebra. Questions on the exam include algebraic operations, equations and inequalities, functions and their properties and number systems and operations.

Minimum Score

Credit will be awarded for a score of 50 or higher.

Rationale

This standard is in line with College Board and American Council on Education's minimum score recommendations <https://clep.collegeboard.org/develop-your-clep-program/create-a-clep-policy/ace-credit-recommendations> .

Additional Credit & Course Equivalency Guidance

Award credit for a 3-credit college algebra course.

Precalculus

The Precalculus examination assesses student mastery of skills and concepts required for success in a first-semester calculus course. A large portion of the exam is devoted to testing a student's understanding of functions and their properties. Many of the questions test a student's knowledge of specific properties of the following types of functions: linear, quadratic, absolute value, square root, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric, and piecewise-defined. Questions on the exam will present these types of functions symbolically, graphically, verbally, or in tabular form.

Minimum Score

Credit will be awarded for a score of 50 or higher.

Rationale

This standard is in line with College Board and American Council on Education's minimum score recommendations <https://clep.collegeboard.org/develop-your-clep-program/create-a-clep-policy/ace-credit-recommendations> .

Additional Credit & Course Equivalency Guidance

Award credit for a 3 credit precalculus course.

Calculus

The Calculus examination covers skills and concepts that are usually taught in a one-semester college course in calculus. The content of the exam includes questions on the topics of limits, differential calculus and integral calculus. Algebraic, trigonometric, exponential, logarithmic, and general functions are included.

Minimum Score

Credit will be awarded for a score of 50 or higher.

Rationale

This standard is in line with College Board and American Council on Education's minimum score recommendations <https://clep.collegeboard.org/develop-your-clep-program/create-a-clep-policy/ace-credit-recommendations> .

Additional Credit & Course Equivalency Guidance

For individuals with a score of at least 50 but less than 64, award credit for an applied calculus course. Some schools do not have such a course, therefore the decision really needs to be at the institution level as to how the course is accepted. For schools without an applied calculus course mathematics elective credit is an alternative requirement that all institutions should be able to accept.

For individuals with a score of 64 or higher, award credit for Calculus I.

College Mathematics

The College Mathematics examination covers some of the material generally taught in a general education mathematics college course for non-mathematics majors and majors in fields not requiring knowledge of advanced mathematics. The topics include algebra and functions, counting and probability, data analysis and statistics, financial mathematics, geometry, logic and sets, numbers.

Minimum Score

Credit will be awarded for a score of 50 or higher.

Rationale

This standard is in line with College Board and American Council on Education's minimum score recommendations <https://clep.collegeboard.org/develop-your-clep-program/create-a-clep-policy/ace-credit-recommendations> .

Additional Credit & Course Equivalency Guidance

Award credit for a 3-credit general education mathematics course. Placement for the next mathematics course to be determined at the institutional level based on course offerings at the school.