Assessment 2: Template for Course Grades and/or Transcript Analysis
(2012 NCTM CAEP Secondary Standards)

Instructions

Completion of this form provides the required information for using grades and/or transcript analysis as evidence of candidates' content knowledge. This document is designed to be editable so that programs can use only sections that are applicable to program type. Programs should not change the structure of the tables provided, but can delete tables or lines that are not needed. Boxes will expand as needed.

Institution Name	**The College of New Jersey**
Program Name	**Mathematics Secondary Education**
Program Type (e.g., Baccalaureate or M.Ed.)	Baccalaureate

Program of Study and Course Descriptions: A complete program of study and set of official course descriptions for all required courses to be used in this evaluation should be attached separately in Section I of the program report.

Part 1. *Description of the Assessment*

Identify the required mathematics major courses chosen for inclusion and supply a rationale for the selection of this particular set of mathematics or mathematics education courses.

We chose the following eight required mathematics courses for Assessment 2:
MAT 200 (Proof Writing through Discrete Mathematics)
STA 216 (Statistical Inference and Probability)
MAT 205 (Linear Algebra: Theory and Applications)
MAT 229 (Multivariable Calculus)
MAT 255 (Perspectives on the Development of Mathematics)
MAT 301 (Number Theory)
MAT 305 (Abstract Algebra)
MAT 351 (Geometry)

We chose these courses because they form most of the core mathematics requirements for the Math Secondary Education major. The only major required courses we did not include are MAT 127 and MAT 128 (Calculus A and B) since they are 100-level courses, and MAT 310 (Real

Analysis) and MAT 497 (Topics in Secondary Mathematics from an Advanced Viewpoint) because they are new requirements and not all completers took them.

Part 2. *Course Alignment with Elements of NCTM CAEP Standards (2012) and with NCTM CAEP Mathematics Content for Secondary*

Technology and Representational Tools Including Concrete Models by Competency

Describe technology and representational tools, including concrete models, used in **required** courses that address competencies. Name the course, tools, and competency by code (e.g., A.1.3) in the discussion of how candidates have multiple opportunities to learn with technology and representational tools across domains.

A.1 Number and Quantity	MAT 301 Number Theory (A.1.2): Candidates write computer programs in Python for various number theory concepts such as calculating the greatest common factor, determining if a number is prime or composite, and using modular arithmetic to implement the RSA public-key cryptosystem. MAT 205 Linear Algebra: Theory and Applications (A.1.2 and A.1.4): Candidates do labs using MATLAB software to explore vector and matrix operations, applications of Linear algebra, and modular arithmetic. MAT 229 Multivariable Calculus (A.1.4): Candidates use Mathematica software to explore vector operations. MAT 255 Perspectives on the Development of Mathematics (A.1.5): Candidates make and use concrete models of "calculi", "bulla", and Babylonian counting tablets to explore ancient number systems.

A.2 Algebra	MAT 205 Linear Algebra: Theory and Applications (A.2.5): Candidates use MATLAB software in labs to explore linear algebra topics. MAT 305 Abstract Algebra (A.2.6): Candidates use Mathematica software during lectures and while completing problems.
A.3 Geometry and Trigonometry	MAT 351 Geometry (A.3.1, A.3.2, A.3.3, A.3.8): Candidates use Geogebra to explore geometry concepts. MAT 255 Perspectives on the Development of Mathematics (A.3.10): Candidates use protractors to mimic Pythagoras' initial work in Geometry and Trigonometry.
A.4 Probability and Statistics	STA 216 Statistical Inference & Probability (A.4.1 – A.4.5): Candidates will utilize technology, including graphing calculators, spreadsheets, and statistical software (minitab, SPSS), to solve probability problems, calculate inference test outcomes and confidence intervals, and compute basic descriptive statistical summary information.
A.5 Calculus	MAT 229 Multivariable Calculus (A.5.2, A.5.4): Candidates use Mathematica software during course lectures and while completing problems. MAT 229 Multvariable Calculus (A.5.2, A.5.4): Candidates use concrete models such as Pringles, Mobius strips, and geometric solids with removable lids as investigative and learning tools.
A.6 Discrete Mathematics	MAT 200 Proof Writing through Discrete Mathematics (A.6.1): Candidates use concrete objects and real-life situations to explore and enact properties of functions.

Rationale for Content Preparation through Coursework for Standard 1

All secondary mathematics teachers should be prepared with depth and breadth in the following mathematical domains: Number, Algebra, Geometry, Trigonometry, Statistics, Probability, Calculus, and Discrete Mathematics. All teachers certified in secondary mathematics should know, understand, teach, and be able to communicate their mathematical knowledge with the breadth of understanding reflecting the following competencies for each of these domains. The program should match **required** coursework to individual competencies within each domain. The rationale should specifically provide evidence and discussion that justifies how the competency indicated in column 1 is addressed in the specific course(s).

A.1. Number and Quantity To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to number and quantity with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:	
	Required Course Number(s) and Name(s) with a specific description of how the indicated competency is addressed in the course(s)
A.1.1 Structure, properties, relationships, operations, and representations including standard and non-standard algorithms, of numbers and number systems including integer, rational, irrational, real, and complex numbers	**MAT 301 Number Theory** – Topics include exploring and comparing structure and properties of number systems, including even numbers, integer, rational, irrational, real, and complex numbers. Also the Euclidean algorithm and Diophantine equations. **MAT 305 Abstract Algebra** - The construction of the field of rational numbers is studied. Students learn how to do algebra calculations involving polynomials over various number systems.
A.1.2 Fundamental ideas of number theory (divisors, factors and factorization, primes, composite numbers, greatest common factor, least common multiple, and modular arithmetic)	**MAT 301 Number Theory** – Topics include divisibility, primes, unique factorization, and modular arithmetic. **MAT 205 Linear Algebra: Theory and Applications** – Topics include modular arithmetic.
A.1.4 Vector and matrix operations, modeling, and applications	**MAT 205 Linear Algebra** – Topics include matrix algebra, vector spaces, and applications. **MAT 229 Multivariable Calculus** – Topics include vectors and vector operations, vector functions, modeling, and vector fields.
A.1.5 Historical development and perspectives of number, number systems, and quantity including contributions of significant figures and diverse cultures	**MAT 255 Perspectives on the Development of Mathematics** – Topics include the development of number systems and number words, zero, the history of negative and irrational numbers, including contributions of significant figures and diverse cultures.

A.2. Algebra To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to algebra with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.	
	Required Course Number(s) and Name(s) with a specific description of how the indicated competency is addressed in the course
A.2.5 Linear algebra including vectors, matrices, and transformations	**MAT 205 Linear Algebra: Theory and Applications** – Topics include systems of linear equations, matrices, linear transformations, linear independence, determinants, vector spaces, eigenvalues and eigenvectors, and orthogonality.
A.2.6 Abstract algebra, including groups, rings, and fields, and the relationship between these structures and formal structures for number systems and numerical and symbolic calculations	**MAT 305 Abstract Algebra** – Topics include groups, rings, integral domains, and fields, and the connection between the abstract systems and the concrete properties of the familiar number systems. For example, the construction of the field of rational numbers is studied. Students learn how to do algebra calculations involving polynomials over various number systems.
A.2.7 Historical development and perspectives of algebra including contributions of significant figures and diverse cultures	**MAT 305 Abstract Algebra** – The ring of integers and the rings of polynomials over a field gives the student an understanding of the historical development of the subject. **MAT 255 Perspectives on the Development of Mathematics** – Topics include the relationship of Greek and Mesopotamian Algebra, the development of the proof process, and the study of mathematicians who contributed to the historical development of Algebra.

A.3. Geometry and Trigonometry To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to geometry and trigonometry with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.	
	Required Course Number(s) and Name(s) with a specific description of how the indicated competency is addressed in the course
A.3.1 Core concepts and principles of Euclidean geometry in two and three dimensions and two-dimensional non-Euclidean geometries	**MAT 351 Geometry** – Students explore Euclidean, hyperbolic and elliptic geometries from a variety of viewpoints, both ancient and modern. Each geometry is understood from three different perspectives: first, as the collection of theorems following from a particular set of axioms; second, as the two dimensional geometry arising from a particular metric; and third, as the geometry obtained from a set together by specifying the group of rigid motions on the set. **MAT 229 Multivariable Calculus** – Topics include the geometry of three-dimensional space.
A.3.2 Transformations including dilations, translations, rotations, reflections, glide reflections,	**MAT 351 Geometry** – Topics include geometric transformations.

A.3. Geometry and Trigonometry To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to geometry and trigonometry with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.	
	Required Course Number(s) and Name(s) with a specific description of how the indicated competency is addressed in the course
compositions of transformations, and the expression of symmetry in terms of transformations.	
A.3.3 Congruence, similarity and scaling, and their development and expression in terms of transformations.	**MAT 351 Geometry** – Topics include congruence and similarity.
A.3.8 Geometric constructions, axiomatic reasoning, and proof.	**MAT 351 Geometry** – Topics include geometric constructions, axiomatic reasoning, and proof.
A.3.10 Historical development and perspectives of geometry and trigonometry including contributions of significant figures and diverse cultures	**MAT 351 Geometry** – Students explore Euclidean, hyperbolic and elliptic geometries from a variety of viewpoints, both ancient and modern. **MAT 255 Perspectives on the Development of Mathematics** – Topics include the growth and travels of trigonometric ideas to measure the heavens from Greece and Egypt to India, then China, to the Middle East, and finally back to Europe. The course also explores mathematicians who contributed to the historical development of Geometry and Trigonometry, including Pythagoras.

A.4. Statistics and Probability To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to statistics and probability with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.	
	Required Course Number(s) and Name(s) with a specific description of how the indicated competency is addressed in the course
A.4.1 Statistical variability and its sources and the role of randomness in statistical inference	**STA 216 Statistical Inference & Probability** – This course introduces future mathematics educators to statistical ideas and concepts with an emphasis on methods of statistical inference. Topics include measures of center and dispersion.
A.4.2 Creation and implementation of surveys and investigations using sampling methods and statistical designs, statistical inference (estimation of population parameters and hypotheses testing), justification of	**STA 216 Statistical Inference & Probability** – This course introduces future mathematics educators to statistical ideas and concepts with an emphasis on methods of statistical inference (notably confidence intervals and hypothesis tests). Topics include the relationship between sample statistics and population parameters, surveys, sampling methods, and making statistically valid conclusions.

A.4. Statistics and Probability To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to statistics and probability with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.	
	Required Course Number(s) and Name(s) with a specific description of how the indicated competency is addressed in the course
conclusions, and generalization of results	
A.4.3 Univariate and bivariate data distributions for categorical data and for discrete and continuous random variables, including representations, construction and interpretation of graphical displays (e.g., box plots, histograms, cumulative frequency plots, scatter plots), summary measures, and comparisons of distributions	**STA 216 Statistical Inference & Probability** – An outcome of the course is that students will be able to understand, interpret, and communicate statistical reasoning from data using basic statistical terms, descriptive statistics, charts and graphs where appropriate. Topics include construction and interpretation of histograms, charts, graphs, stem & leaf plots, box plots, and scatter plots. Topics also include measures of center and spread.
A.4.4 Empirical and theoretical probability (discrete, continuous, and conditional) for both simple and compound events	**STA 216 Statistical Inference & Probability** – Topics include probability (notably conditional probability, the binomial and geometric distributions, and concepts relating to independence and disjoint probabilities).
A.4.5 Random (chance) phenomena, simulations, and probability distributions and their application as models of real phenomena and to decision making	**STA 216 Statistical Inference & Probability** – A course outcome is for students to understand and be able to describe principles of probability, including the application of the normal curve to social and physical phenomena.
A.4.6 Historical development and perspectives of statistics and probability including contributions of significant figures and diverse cultures	**MAT 255 Perspectives on the Development of Mathematics** – The course explores mathematicians who contributed to the historical development of Statistics and Probability.

A.5. Calculus To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to calculus with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.	
	Required Course Number(s) and Name(s) with a specific description of how the indicated competency is addressed in the course
A.5.2 Parametric, polar, and vector functions	**MAT 229 Multivariable Calculus** – Topics include vector functions and space curves, vector calculus, double integrals in rectangular and polar coordinates, and parametric surfaces and their areas.
A.5.4 Multivariate functions	**MAT 229 Multivariable Calculus** – Topics include functions of several variables, partial derivatives, and double and triple integrals.
A.5.6 Historical development and perspectives of calculus including contributions of significant figures and diverse cultures	**MAT 255 Perspectives on the Development of Mathematics** – The course explores mathematicians who contributed to the historical development of Calculus.

A.6. Discrete Mathematics To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to discrete mathematics with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.	
	Required Course Number(s) and Name(s) with a specific description of how the indicated competency is addressed in the course
A.6.1 Discrete structures including sets, relations, functions, graphs, trees, and networks	**MAT 200 Proof Writing through Discrete Mathematics –** Topics include definitions and properties of functions and relations, proofs of set equality, and a brief introduction to graph theory, including graphs, trees, and networks. In addition to teaching logic, functions, and relations, proof will be taught with examples taken from three to four areas of discrete mathematics including set theory, number theory, sequences and recursion, and graph theory.
A.6.3 Propositional and predicate logic	**MAT 200 Proof Writing through Discrete Mathematics –** Topics include logic, truth tables, predicates and quantified statements, direct and indirect proofs, proofs by contradiction, proofs by cases, mathematical induction, and contrapositive proofs.
A.6.5 Historical development and perspectives of discrete mathematics including contributions of significant figures and diverse cultures	**MAT 255 Perspectives on the Development of Mathematics** – Students investigate how mathematical theories are constantly being challenged and defended; e.g. the development of set theory, leading to higher level of correctness and abstract ideas. Another topic students investigate is the development of the proof process. The course also explores mathematicians who contributed to the historical development of Discrete Mathematics.

Rationale for Standards other than Standard 1 through Coursework
Elements from Standard 2 are included for your convenience, additional elements can be added as needed in the same manner and/or elements from Standard 2 can be deleted.

Element number	Required Course Number(s) and Name(s) with a specific description of how the indicated element is addressed in the course(s)
2a) Use problem solving to develop conceptual understanding, make sense of a wide variety of problems and persevere in solving them, apply and adapt a variety of strategies in solving problems confronted within the field of mathematics and other contexts, and formulate and test conjectures in order to frame generalizations.	**MAT 229 Multivariable Calculus -** Upon completion of the course, we expect students to show competence with the ideas of calculus and its calculations, to understand how to apply calculus to solve real-world problems, to exhibit an improved ability to describe a real-world problem mathematically, to have an increased mathematical maturity, and to have an improved ability to read, write, and understand mathematics. By working on many real-life problems, students will gain an appreciation for the practical applications of calculus. They are also exposed to the concepts and techniques of problem solving through individual and group work on the exercises. **MAT 205 Linear Algebra: Theory and Applications** - Through the use of fun, challenging problems, the course should develop a student's problem solving ability and introduce students to the joys of mathematics. They should be able to recognize when a real world problem involves linear algebra and be able to translate it into a mathematical form. **MAT 301 Number Theory** - Number Theory introduces students to some of the classical problems in elementary number theory. Through the use of challenging problems, the course should also develop a student's problem solving ability. **MAT 305 Abstract Algebra** – Upon completion of the course, students should understand the connection between algebra and the solution of problems from other fields of mathematics. **MAT 351 Geometry –** Students will apply knowledge learned in previous courses to solve problems in this course.
2b) Reason abstractly, reflectively, and quantitatively with attention to units, constructing viable arguments and proofs, and critiquing the reasoning of others; represent and model	**MAT 200 Proof Writing through Discrete Mathematics** – The course's primary goal is to develop a student's ability to understand the language of abstract mathematics. This includes the ability to interpret and create formal definitions, to formulate, read, write and critique proofs and to read and write mathematical prose. These skills will be practiced and mastered as students are introduced to the basic concepts of discrete mathematics. At the completion of the course, students should demonstrate

Element number	Required Course Number(s) and Name(s) with a specific description of how the indicated element is addressed in the course(s)
generalizations using mathematics; recognize structure and express regularity in patterns of mathematical reasoning; use multiple representations to model and describe mathematics; and utilize appropriate mathematical vocabulary and symbols to communicate mathematical ideas to others.	competence with logical thinking and the use of various proof techniques. A successful student should be able to read and write formal mathematical statements such as definitions and the statements of theorems. They should be able to compose proofs from intuitive ideas and outlines. Their exposition should be mathematically correct, logically organized and stylistically clear. They should also be able to read mathematical prose, interpret it at an intuitive level, critique its style, determine its base assumptions and mathematical accuracy. **MAT 205 Linear Algebra: Theory and Applications -** A primary learning goal of Linear Algebra is the continuing development of a student's mathematical maturity. Abstract thinking, logical reasoning skills, the ability to read and write mathematics, and the ability to do proofs are all skills that need to be developed in a successful mathematics major. All mathematics courses work on these skills, but the course sequence of MAT 200 and MAT 205 has been devised by the department as a sequential series of courses in which these skills will be emphasized and developed in order to prepare students for the more advanced reasoning and communication skills expected of them in the required major courses of Abstract Algebra, Real Analysis, and Complex Analysis. **MAT 301 Number Theory** - While learning the subject matter of number theory, the course will also develop a student's ability to reason abstractly, to read mathematics, and to prove theorems. **MAT 305 Abstract Algebra** - An additional learning goal of Abstract Algebra is the further development of both a student's abstract reasoning ability and a student's ability to read, write, and understand proofs. The level of proofs in Abstract Algebra is at a high level and builds upon the techniques of proof that a student has learned in MAT 200 and MAT 205. **MAT 351 Geometry** - Students will grow in their ability to reason abstractly, to read mathematics and write proofs, and to find a mature mathematician's balance between the abstract and the concrete. Students will prove or disprove theorems in the various geometries.

Part 3. *Grade Policy and Minimum Expectation*

Submit grading policy/definitions of grades that are used by the institution or program and the minimum expectation for candidate performance (e.g., candidates must achieve a C or better in required coursework).

The following grading policy is copied from the undergraduate bulletin for the college:

Grading

The letter grades A through F have two principal functions: awarding course credit and recognizing relative merit. By awarding a grade of D or higher, an instructor certifies that a student has successfully completed the requirements of a course and thereby earned credit for that course. By awarding a grade of F, an instructor certifies that a student has failed to complete the requirements for a course and thus not earned credit for that course. In addition, instructors use letter grades A through D to recognize the relative merit of a student's performance.

Grading System

Grade	Weight
A	4.00
A–	3.67
B+	3.33
B	3.00
B–	2.67
C+	2.33
C	2.00
C–	1.67
D+	1.33
D	1.00
F	0.00

The following statement is the Mathematics and Statistics Department's graduation requirement:

In courses offered by the Department of Mathematics and Statistics, a grade of C- or better must be earned in the courses that satisfy a graduation requirement, with the following exception. Students may count one D or D+ grade in a 300 or 400 level course. A grade of at least C- must be earned in any required course that is a prerequisite for another course which is subsequently taken. Students must satisfy the retention requirements for their major to graduate.

Part 4. *Data Tables*

Select the appropriate combination of data tables. The number of completers in the data tables for each academic year must be consistent with the number of completers reported in Section I of the program report.

Data Table A (Coursework Taken at Submitting Institution)

Data Table A is to be used for undergraduate and graduate completers whose mathematics and/or mathematics education coursework is mostly completed at the submitting institution. Mean course grades and grade distribution (range) in selected required mathematics or mathematics education courses, number of undergraduate or graduate completers, and percentage of completers meeting the minimum expectation disaggregated by level (e.g., undergraduate or graduate program completers) and by academic year must be included.

Grades in Required Mathematics and/or Mathematics Education Courses Secondary Mathematics Education Undergraduate Program Completers						
Grade Scale: A 4.00 A– 3.67 B+ 3.33 B 3.00 B– 2.67 C+ 2.33 C 2.00 C– 1.67 D+ 1.33 D 1.00 F 0.00						
	2017-2018			**2018-2019**		
Course Number and Name	**Mean Course Grade* and (Range)**	**Number of Completers (n = 21)**	**% of Completers Meeting Minimum Expectation (C- or better)**	**Mean Course Grade* and (Range)**	**Number of Completers (n = 20)**	**% of Completers Meeting Minimum Expectation (C- or better)**
MAT 200: Proof Writing through Discrete Mathematics	2.81 (1.67 – 3.33)	21	100%	2.77 (1.67 – 4.00)	19*	100%
MAT 205: Linear Algebra: Theory and Applications	3.03 (1.67 – 4.00)	19*	100%	2.77 (1.67 – 4.00)	20	100%
MAT 229:	3.09 (2.00 – 4.00)	18*	100%	2.92 (1.67 – 4.00)	16*	100%

Multivariable Calculus						
MAT 255: Perspectives on the Development of Mathematics	3.27 (2.33 – 4.00)	21	100%	3.05 (2.00 – 4.00)	20	100%
MAT 301: Number Theory	2.91 (1.67 – 4.00)	21	100%	2.80 (1.67 – 4.00)	20	100%
MAT 305: Abstract Algebra	2.82 (1.67 – 4.00)	20*	100%	2.62 (1.67 – 4.00)	20	100%
MAT 351: Geometry	3.00 (2.00 – 4.00)	21	100%	3.22 (2.33 – 4.00)	20	100%
STA 216: Statistical Inference and Probability	3.56 (2.67 – 4.00)	15**	100%	3.07 (1.00 – 4.00)	18**	94%

***Candidates transferred course, no grade is assigned.**

****Candidates had AP credit for Statistics, no grade is assigned.**

Data Table B (Mathematics Major Coursework GPA):

Data Table B is to be used for both undergraduate and graduate program completers to report overall mathematics GPAs across all required mathematics major courses listed on the plan of study or transcript review form submitted in Section I of the program report. The table should be duplicated for each program reported. Data Table B may replace Data Table A for a graduate level program that relies on coursework taken at another institution. Data disaggregated by academic year on completers' mean grade point average (GPA) and grade distribution (range) across all required undergraduate mathematics major courses, number of completers, and percentage of completers meeting the minimum expectation must be included.

Mean GPA in Required Mathematics Major Courses for Secondary Mathematics Education Completers Baccalaureate Program			
Grade Scale: A 4.00 A– 3.67 B+ 3.33 B 3.00 B– 2.67 C+ 2.33 C 2.00 C– 1.67 D+ 1.33 D 1.00 F 0.00			
Academic Year	**Mean GPA and (Range)**	**Number of Completers**	**% of Completers Meeting Minimum Expectation (2.0)**
2017-2018	3.06	21	100%

	(2.38 – 3.71)		
2018-2019	2.93 (1.83 – 3.90)	20	95%

Part 5. *Analysis*

Provide an analysis of grade data. An explanation of any inconsistencies within the data tables must accompany the data tables.

Data Table A

For the year 2017-2018, with the exception of MAT 200 and 305, all course averages are around a B or B+. The average course grades in MAT 200 (Proof Writing through Discrete Math) and MAT 305 (Abstract Algebra) are slightly lower than the others (a little higher than B-). The highest course average was in STA 216 (Statistical Inference and Probability).

For the year 2018 – 2019, the course averages overall are slightly lower. With the exception of MAT 351, all course averages are around B- or B. The course average for MAT 351 (Geometry) was closer to B+ and is the highest of the course averages. The lowest course average was in MAT 305 (Abstract Algebra).

It is not surprising that the course averages in 2017–2018 are higher overall, as that cohort was exceptionally strong. It is also not surprising that the lowest course averages across both years appeared in MAT 305 (Abstract Algebra) as that course has a reputation of being very difficult. It is rather surprising that from 2017-2018 to 2018-2019, the course average for MAT 351 (Geometry) increased from 3.0 to 3.22, since the averages in all other courses decreased.

Data Table B

We actually do not have a minimum GPA requirement for just the required mathematics courses in the Mathematics Secondary Education major. The minimum of 2.0 includes other courses that are not required, such as the MAT/STA options and the Education courses that are required. Therefore, the one student who had a GPA below the minimum of 2.0 was able to obtain the minimum necessary for program completion with other courses.