

2024-2025 MATH COURSE GUIDE



Table of Contents

TABLE OF CONTENTS	1
MATH – PLANNING GUIDE.....	2
REGENTS MATH	2
HONORS MATH	2
MATH – PLANNING FLOWCHART	3
FLOWCHART 1: REGENTS PATHWAY	3
FLOWCHART 2: HONORS PATHWAY.....	3
MATH - COURSE DESCRIPTIONS.....	4
ALGEBRA.....	4
DOUBLE BLOCK ALGEBRA	4
HONORS GEOMETRY	4
GEOMETRY REGENTS.....	5
GEOMETRY REGENTS LAB	5
HONORS ALGEBRA II	5
ALGEBRA II REGENTS	6
ALGEBRA II REGENTS LAB	6
HONORS PRE-CALCULUS	6
PRE-CALCULUS.....	7
AP CALCULUS (AB).....	7
CALCULUS	7
AP STATISTICS.....	8
COLLEGE MATH (SUNY MT 125)	8
LIFE MATH	8



Math – Planning Guide

Beginning in Grade 8, follow one of the pathways outlined below. (see Math – Planning Flowchart for a visual representation)

Regents Math

All students following Regents Math take

- ✓ Math 8 1 credit Grade 8
- ✓ Algebra I 1 credit Grade 9

Then follow Path A below. Path B is by recommendation ONLY

Path A

All required courses above plus

- ✓ Geometry 1 credit Grade 10
- ✓ Algebra II 1 credit Grade 11

And any ONE of the following choices

- ☐ SUNY Pre-Calculus 1 credit Grade 12
- ☐ AP Statistics 1 credit Grade 12
- ☐ AP Computer Science 1 credit Grade 12

Path B (by recommendation only)

All required courses above plus

- ✓ Geometry (Lab) 1 credit Grade 10
- ✓ Algebra II (Lab) 1 credit Grade 11
- ✓ College Math 1 credit Grade 12
 - 1st sem – exam prep for Algebra II retries
 - 2nd sem – College Entrance Math

And any ONE of the following choices

- ☐ SUNY Pre-Calculus 1 credit Grade 12
- ☐ AP Statistics 1 credit Grade 12
- ☐ AP Computer Science 1 credit Grade 12

Honors Math

All students following Honors Math take

- ✓ Algebra I 1 credit Grade 8
- Then follow Honors or Regents Track Below

Honors Track

- ✓ Geometry (H) 1 credit Grade 9
- ✓ Algebra II (H) 1 credit Grade 10

Then stay path or decelerate

Stay Path

- ✓ Pre-Calculus (H) 1 credit Grade 11
- ✓ AP Calculus 1 credit Grade 12

Decelerate

- ✓ SUNY Pre-Calculus 1 credit Grade 11
 - ☐ Calculus (R) 1 credit Grade 12
- Optional after completing SUNY Pre-Calc

Regents Track

- ✓ Geometry (R) 1 credit Grade 9
- ✓ Algebra II (R) 1 credit Grade 10

Additional Options for both Honors and Regents Track

- ☐ AP Statistics 1 credit Grade 11 or 12
- ☐ AP Computer Science 1 credit Grade 11 or 12

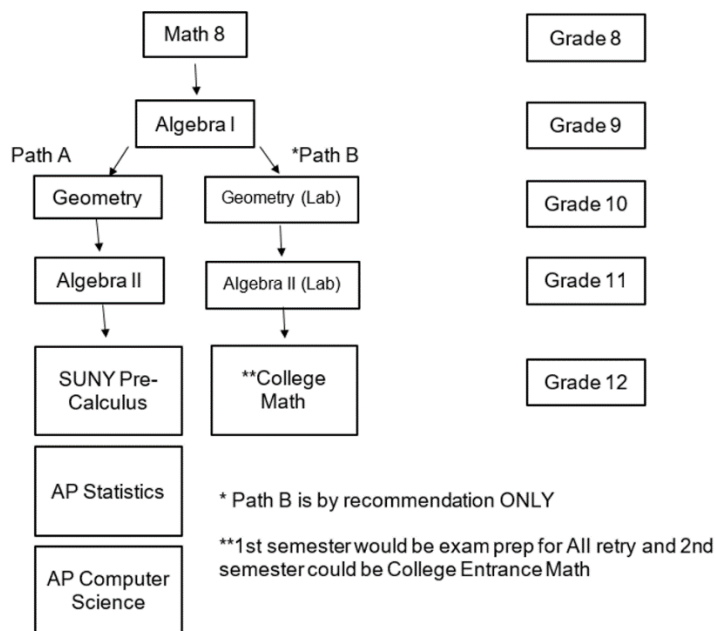


Math – Planning Flowchart

Visual representation of the pathways beginning in Grade 8. For a detailed text version, see Math – Planning Guide.

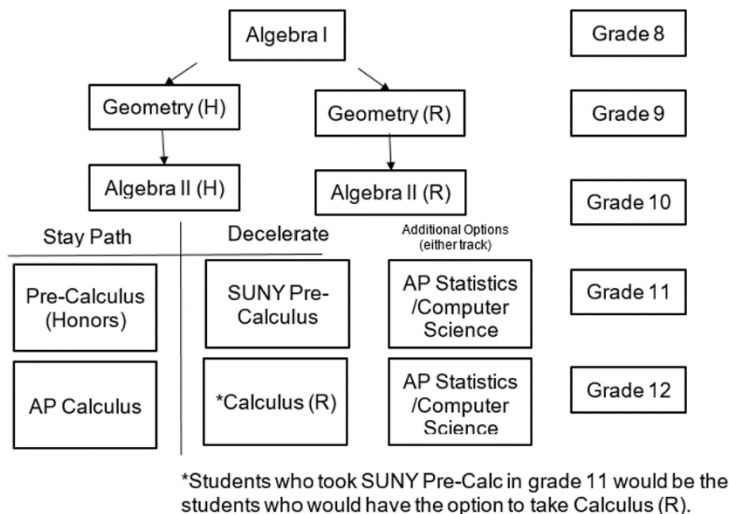
Flowchart 1: Regents Pathway

Regents:



Flowchart 2: Honors Pathway

Honors:





Math - Course Descriptions

Algebra

3538 Grade 9

1 credit

★ **Passing the NYS Regents Algebra exam is required for graduation.**

⊗ Required: TI-84+ Graphing Calculator

Algebra is the first mathematics course in the high school. Algebra provides tools and ways of thinking that are necessary for solving problems in a wide variety of disciplines. This course will assist students in developing skills and processes to be applied using a variety of techniques, including technology, to successfully solve problems in a variety of settings including: linear equations in one variable, quadratic functions with integral coefficients and roots as well as absolute value and exponential functions. Students will take the NYS Regents Algebra exam in June. Passing this exam is required for graduation.

Double Block Algebra

Grade 9

1 credit

★ **Passing the NYS Regents Algebra exam is required for graduation.**

⊗ **NOTE: Teacher's work directly with counselors to determine placement**

⊗ Required: TI-84+ Graphing Calculator

Double Block Algebra is an Algebra course in which students have math two consecutive periods every day. Algebra is the first math course that students take in high school, and students must take the NYS Algebra Exam in June as it is a requirement for graduation. This course will assist students in developing skills and techniques, including technology, to successfully solve problems in a variety of settings. Major topics include linear functions, quadratic functions and exponential functions. In Double Block, students will have extra time to participate in team building activities, work on white boards, complete math games and projects, and participate in other hands-on activities to enhance understanding.

Honors Geometry

3433 Grade 9

1 credit

★ Recommendation: Successful completion of accelerated Algebra with a final average of 83%+ and NYS Regents Algebra final exam score of 80%+

★ **Passing the NYS Regents Geometry exam is the second of three required for an Advanced Regents Diploma**

⊗ Required: TI-84+ Graphing Calculator



Geometry is the second course in mathematics for high school students. Within this course, students will have the opportunity to make conjectures about geometric situations and prove in a variety of ways, both formal and informal, that their conclusion follows logically from their hypothesis. Students will use the traditional tools of compass and straightedge. Geometry is meant to lead students to an understanding that reasoning and proof are fundamental aspects of mathematics and something that sets it apart from the other sciences. Students will take the NYS Regents Geometry exam in June. This exam is the second of three math exams required for an Advanced Regents diploma.



Geometry Regents

3422 Grade 10**1 credit**

★ **Passing the NYS Regents Geometry exam is the second of three required for an Advanced Regents Diploma**

⊗ Required: TI-84+ Graphing Calculator

Geometry is the second course in mathematics for high school students. Within this course, students will have the opportunity to make conjectures about geometric situations and prove in a variety of ways, both formal and informal, that their conclusion follows logically from their hypothesis. Students will use the traditional tools of compass and straightedge. Geometry is meant to lead students to an understanding that reasoning and proof are fundamental aspects of mathematics and something that sets it apart from the other sciences. Students will take the NYS Regents Geometry exam in June. This exam is the second of three math exams required for an Advanced Regents diploma.

Geometry Regents Lab

Grade 10**1 credit**

★ **Passing the NYS Regents Geometry exam is the second of three required for an Advanced Regents Diploma**

⊗ **NOTE: Teacher's work directly with counselors to determine placement**

⊗ Required: TI-84+ Graphing Calculator

Geometry is the second course in mathematics for high school students. Students will have a lab period for reinforcement every other day. Within this course, students will have the opportunity to make conjectures about geometric situations and prove in a variety of ways, both formal and informal, that their conclusion follows logically from their hypothesis. Students will use the traditional tools of compass and straightedge. Geometry is meant to lead students to an understanding that reasoning and proof are fundamental aspects of mathematics and something that sets it apart from the other sciences. In addition to meeting on a daily basis, students will have an additional reinforcement period every other day. Students will take the NYS Regents Geometry exam in June. This exam is the second of three math exams required for an Advanced Regents diploma.

Honors Algebra II

3521 Grades 10,11**1 credit**

★ Recommendation: Successful completion of Honors Geometry & NYS Regents Algebra Common Core final exam score of 80%+

★ **Passing the NYS Regents Algebra II exam is the capstone of three required for an Advanced Regents Diploma**

⊗ Required: TI-84+ Graphing Calculator



Algebra II an upper-level course and a continuation and extension of the two courses that precede it. While developing the algebraic techniques that will be required of students who continue their study of mathematics, this course is also intended to continue developing alternative solution strategies and algorithms. Technology will provide students the means to address a problem situation to which they might not otherwise have access. Students will take the NYS Regents Algebra II exam in June.



Algebra II Regents

3522 Grades 10, 11

1 credit

★ **Passing the NYS Regents Algebra II exam is the capstone of three required for an Advanced Regents Diploma**

⊗ Required: TI-84+ Graphing Calculator

Algebra II an upper-level math course and is a continuation and extension of Algebra I and Geometry. While developing the algebraic techniques that will be required of students who continue their study of mathematics, this course is also intended to continue developing alternative solution strategies and algorithms. Technology will provide students the means to address a problem situation to which they might not otherwise have access. Students will take the NYS Regents Algebra II exam in June.

Algebra II Regents Lab

3523 Grades 10, 11

1 credit

★ **Passing the NYS Regents Algebra II exam is the capstone of three required for an Advanced Regents Diploma**

⊗ **NOTE: Teacher's work directly with counselors to determine placement**

⊗ Required: TI-84+ Graphing Calculator

Algebra II an upper-level math course and is a continuation and extension of Algebra I and Geometry. While developing the algebraic techniques that will be required of students who continue their study of mathematics, this course is also intended to continue developing alternative solution strategies and algorithms. Technology will provide students the means to address a problem situation to which they might not otherwise have access. In addition to meeting on a daily basis, students will have an additional reinforcement period every other day. Students will take the NYS Regents Algebra II exam in June.

Honors Pre-Calculus

3014 Grade 11

1 credit

★ Recommendation: A final average of 85%+ in Honors Algebra II and NYS Regents Algebra II exam.

★ **This course should be considered only by highly motivated students.**

⊗ Required: TI-84+ Graphing Calculator



The objective of this course is to keep the students who are planning to take AP Calculus in their senior year together for two years so the needless repetition of topics can be eliminated and the students can gain an appreciation for rigorous mathematical investigation. This course should be considered only by highly motivated students and will include the first 2 chapters of AP Calculus. Students will take a teacher made assessment in June.



Pre-Calculus

3013 Grades 11, 12

1 credit

★ Recommendation: A final average of 75%+ in Algebra II and 65%+ on NYS Algebra II exam. Algebra II Lab students should seek teacher recommendation.

⊗ Required: TI-84+ Graphing Calculator

↔ DUAL ENROLLMENT OPTION AVAILABLE

MAT124: Functioning and Modeling II (4 credits)



This course is designed to provide a sound foundation for seniors who are planning to enter a four-year college after graduation. Students in this class will deepen their algebraic skills as this course will emphasize mathematical thinking, the use of mathematical models and the understanding of mathematical functions and graphs. Beginning concepts of Calculus will be introduced. Students will have the opportunity to take this course for 4 SUNY college credits. Students will take a teacher made assessment in June.

AP Calculus (AB)

3412 Grade 12

1 credit

★ Recommendation: A final average of 80%+ in Pre-Calculus Honors

★ *This course should be considered only by highly motivated and mature students.*



↔ DUAL ENROLLMENT OPTION AVAILABLE

MAT161: Calculus I and MAT163 Using Technology to explore Calculus I (5 credits)



This course consists of a full high school academic year of work that is comparable to 1.5 semesters of calculus in colleges and universities. It is expected that students who take AP Calculus will seek college credit, college placement, or both from post-secondary institutions of higher learning. Topics covered in this course include functions, graphs, limits, differential calculus and integral calculus. Applications of each topic are explored and the use of the graphing calculator is mandatory. In addition to the AP Exam in May, there will be a final assessment given by the instructor in June. This is a college level course and should be considered only by highly motivated and mature students. Students will have the opportunity to take this course for 5 SUNY college credits or AP college board credit.

Calculus

3411 Grade 12

1 credit

⊗ Recommendation: Successful completion of Pre-Calculus

⊗ Required: TI-84+ Graphing Calculator

This course is designed for students who successfully completed Pre-Calculus and are going to a four year college but are not planning on taking AP Calculus. The course consists of a full high school academic year of work that is comparable to one semester of calculus in colleges and universities. Topics covered in this course include functions, graphs, limits, differential calculus and integral calculus. This is a college level course and a great foundation for success in college calculus. Students will take a teacher made assessment in June.



AP Statistics

3513 Grades 11, 12

1 credit

★ Recommendation: A final average of 85%+ in Algebra II Regents

★ ***This course should be considered only by highly motivated and mature students***

⊗ Required: TI-84+ Graphing Calculator



↔ **DUAL ENROLLMENT OPTION AVAILABLE**

MAT311 Introductory Probability and Statistics (3 credits)



This is a full high school academic year course that is comparable to 1-2 semesters of introductory college statistics. Students who take AP Statistics seek to receive college credit, college placement, or both, from post secondary institutions. This course covers such topics as exploratory statistical analysis, proper methods for data collection, probability of anticipating outcomes from given models, and applying statistical inference guides when researching data. In addition to the AP Exam in May, there will be a final assessment given by the instructor in June. This is a college level course and should only be considered by highly motivated, mature students who possess above average math and writing skills.

College Math (SUNY MT 125)

1420 Grade 12

1 credit

★ Recommendation: Successful completion of Algebra II Regents Lab

⊗ **NOTE: Teacher's work directly with counselors to determine placement**

⊗ Required: Graphing Calculator

↔ **DUAL ENROLLMENT OPTION AVAILABLE**

MT125 College Mathematics (4 credits)



This course is designed to provide a sound foundation for seniors who are planning to enter a two or four-year college after graduation. Algebra II skills are reviewed and extended. Functions, and their inverses are studied along with the properties, graphs and transformations of linear, quadratic absolute value, radical rational, logarithmic and exponential functions. Equations of the above functions as well as linear systems of equations and linear and absolute value inequalities are solved. Related application problems and projects are incorporated throughout. Students will have the opportunity to take this course for 4 SUNY COLLEGE CREDITS. Students retake the Regents Algebra II exam in January and take a teacher made assessment in June.

Life Math

3424 Grades 11, 12

1 credit

★ Recommendation: Successful completion of a Geometry-level course

This class shows how math topics apply to real-life situations. In this class, the topics covered include percentages, measurements, metric, fractions, unit conversions, checking accounts, bank fees, loans, taxes, work forms, problem solving, consumer purchases, credit, probability, odds, commissions, work related math skills, and much more. We will also work on listening, teamwork, and communication skills. Everything learned in this class will be put to good use immediately. This math class is truly for life.