

# Syllabus – Algebra 150

## Collegiate School of Medicine and Bioscience

### 2024-2025



### Instructor

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### About:

Mr. Sabor is entering his twelfth year teaching mathematics. He is the instructor for Algebra I at Collegiate School of Medicine and Bioscience. Prior to joining CSMB, Mr. Sabor taught secondary mathematics at KIPP Truth Academy and Grand Prairie High School in Dallas, TX. He also served as a math teacher and department chair at Pioneer Charter School of Science II in Boston, MA. Mr. Sabor earned his A.B. in Mathematics cum laude from Harvard College in 2013 and his M.A. in Educational Leadership from St. Louis University in 2023. He holds teacher certifications in Massachusetts, Texas, and Missouri, as well as a building administrator certificate in Missouri. In his spare time, Mr. Sabor occupies himself with musical endeavors, currently singing with the Ambassadors of Harmony. He lives in St. Louis City with his wife and two cats.

**Room:** 133

**Mentor Group:** 12<sup>th</sup> Eagle

### Course Description

Algebra will require a mastery of pre-algebra and basic numerical concepts. In this course, students will use symbolic reasoning to represent mathematical situations, express generalizations, and study relationships among quantities that can be represented with linear equations, linear inequalities, and linear functions. Students will also be introduced to nonlinear functions such as quadratics and exponentials. By the end of the course, students should be able to represent mathematical models using a variety of methods. Successful completion of Algebra 150 will give students a strong foundation for future math courses.

### Instructional Vision

“Collegiate School of Medicine and Bioscience empowers students to become innovative community leaders in bioscience through its rigorous, college-preparatory curriculum.”  
– Mission, Collegiate School of Medicine and Bioscience

“Problem solving is what we do when we don’t know what to do.”  
– Dr. Peter Liljedahl, *Building Thinking Classrooms in Mathematics* (2021)

For students to become “innovative community leaders,” students must learn how to address problems for which they have not yet seen solution methods. Instruction in Algebra 1 will prioritize developing problem-solving practices. Students will use those practices to master the Algebra 1 learning standards.

Learn more about the math education research at <https://buildingthinkingclassrooms.com/14-practices/>.

### Grading

60% Quizzes

15% Participation

12.5% Quarter Exam

12.5% Semester Final Exam

# Standards-Based Quiz Grading

## What about standards-based quiz grading may be familiar?

Students will complete problems on short quizzes (typically 10-20 minutes) as opportunities to demonstrate mastery of the learning standards.

Grades will be regularly updated in Collegiate's Student Information Systems at [sis.slps.org/slps/](https://sis.slps.org/slps/) and reported on an 100-point scale.

## What about standards-based quiz grading may be unfamiliar?

At the beginning of each quiz attempt, individual students will elect to see basic-, proficient-, or advanced-level questions. All questions within a quiz will address the same learning standard.

Quizzes will determine the majority of students' course grades and can be retaken for up to full credit.

Below is an example of how a 5-question quiz might be reported as a quiz grade.

# Correct	0	1	2	3	4	5
Basic	0%	15%	30%	45%	60%	70%
Proficient	0%	20%	40%	60%	80%	90%
Advanced	0%	25%	50%	70%	90%	110%

## Why use standards-based quiz grading?

If a student gets enough proficient-level questions right on a standard, they should not be penalized for getting basic questions wrong in the past or getting advanced questions wrong in the future.

Standards-based grading helps students, parents, and educators identify and address content-area strengths and weaknesses. It also rewards success achieved at any time, regardless of the path to reach mastery.

## Course Sequence

0. Advanced Arithmetic
  1. Integer and Decimal Arithmetic
  2. Fraction Arithmetic
  3. Linear-Like Polynomial Equivalence
1. Solving Equations and Inequalities
  1. Solving One-Variable Linear Statements
  2. Solving Multivariable Equations
  3. One-Variable Solution Sets
2. Slope
  1. Two-Variable Solution Sets
  2. Properties of Linear Functions
  3. Writing Linear Functions as Equations
  4. Graphing Linear Functions
  5. Modeling with Linear Functions
3. Functions
  1. Functions
4. Systems of Equations
  1. Solving Systems of Equations
  2. Relationships Between Lines
  3. Graphing Linear Inequalities
  4. Modeling with Linear Systems
5. Exponential Equations
  1. Equivalent Exponential Expressions
  2. Radicals and Rational Exponents
  3. Arithmetic and Geometric Sequences
  4. Properties of Exponential Functions
  5. Modeling with Exponential Representations
6. Polynomials
  1. Multiplying Polynomials
  2. Factoring Polynomials
7. Quadratic Equations
  1. Solving Quadratic Equations
  2. Vertex Form of Quadratic Functions
  3. Properties of Quadratic Functions
  4. Modeling with Quadratic Representations
  5. Graphing with Parameters
8. Data and Statistical Analysis
  1. Data and Statistical Analysis

# Core Opportunities

All students are expected to complete each of the following.

## Exit Tickets

Exit tickets will include at least one basic-, proficient-, and advanced-level question on one standard from that class period.

## Proficiency Quizzes

Proficiency quizzes will be offered at basic, proficient, and advanced levels, with questions that are representative of a single standard. Students will have regular opportunities to reattempt quizzes.

## District Assessments

St. Louis Public Schools schedules certain assessments for all Algebra 1 students.

## Quarter Exams & Final Exams

Quarter and final exams will include basic-, proficient-, and advanced-level questions selected from all standards in the quarter.

# Check-Your-Understanding Questions

Students will not receive a grade for check-your-understanding questions. The goal is to understand the problems thoroughly and make mistakes safely. Different students will need to spend different amounts of time on different amounts of questions to understand. **Students should engage with as many or as few questions as necessary to master the material.**

## Traditional Check-Your-Understanding Questions

These questions, provided after most lessons, replace traditional homework.

Students will be provided questions and correct final answers shortly after a lesson. Full solution methods will be provided a few school days later.

# Question Difficulty and Mastery Levels

The following levers contribute to how challenging a math task can be:

1. **Language Complexity** – What vocabulary and grammar are being used in the question? *Understanding the problem is necessary to start thinking about the problem.*
2. **Novelty** – How similar is the problem to other problems? *Doing the same problem with different numbers is easier than doing a new problem, even with the same standard. Advanced questions often require synthesis – applying knowledge from different standards at the same time.*
3. **Numerical Complexity** – What types of numbers are being used? *Fractions, decimals, negatives, and numbers with more digits typically increase the difficulty level.*
4. **Calculation Complexity** – What and how many calculations are being performed? *Some procedures have more steps than others, which increases opportunities for minor mistakes.*
5. **Bloom's Taxonomy** – What type of thinking is necessary? *From least to most challenging: remember, understand, apply, analyze, evaluate, create.*
6. **Modeling Complexity** – Is there a need to convert between abstract and concrete thinking? *Going from abstract to concrete ("What does this equation tell us about profit?") or from concrete to abstract ("Write an equation to describe profits.") – or both – increases complexity.*

There is no single, clear line between basic-, proficient-, and advanced-level questions, because a question can be very complex in one way and not in others.

**Proficient-level questions** are the standard expectation of students in the course. For Algebra 1, students demonstrating proficiency in all standards are comfortably prepared for Algebra 2.

**Basic-level questions** address the same standards with few complexities.

**Advanced-level questions** address the same standards with many or significant complexities.

# Resources

## Learning Resources

When a student is stuck on a particular problem or concept, the following resources are good places to try:

- CSMB Math Tutoring
- enVision Algebra I aka Savvas Learning
- Khan Academy ([www.khanacademy.org](http://www.khanacademy.org))
- IXL Math ([www.ixl.com/math/](http://www.ixl.com/math/))
- Art of Problem Solving ([www.artofproblemsolving.com](http://www.artofproblemsolving.com))
- CSMB classmates
- Mr. Sabor ([william.sabor@slps.org](mailto:william.sabor@slps.org))

## CSMB After School Math Tutoring

Starting on September 10<sup>th</sup>, 2024, math tutoring will be available to all Collegiate students after school on Tuesdays from 3:30 PM – 5:15 PM. Transportation is available.

Sign up in Mr. Sabor's room before the end of mentor period. Low signups may occasionally cause tutoring to be cancelled, and high signups may cause walk-ins to be turned away.

## CSMB Math Tutoring Center

Throughout the year, Mr. Hommowun will provide math tutoring during mentor. Speak to Mr. Sabor or Mr. Hommowun to learn more about the current math tutoring center schedule. There may be times when selected students are required to attend math tutoring.

## Mathematical Tools

The following tools do not provide explanations, but they are very useful tools to have available.

[www.desmos.com/calculator](http://www.desmos.com/calculator)

[www.wolframalpha.com](http://www.wolframalpha.com)

[www.geogebra.org](http://www.geogebra.org)

## Electronic Accounts

Students will use the following electronic accounts over the course of the year. There is a possibility that one or two may be added.

- Microsoft Teams, including Microsoft OneNote's Class Notebook
- Desmos Student ([student.desmos.com](http://student.desmos.com))
- Edulastic ([www.edulastic.com](http://www.edulastic.com))
- Savvas Learning ([savvasrealize.com](http://savvasrealize.com))

## Absences

When you are absent, it is your responsibility to check with classmates or Mr. Sabor for the missed learning. Upon returning, make sure you understand your makeup work and timeline by the end of that day. If the missed work or return date includes an assessment, contact Mr. Sabor to determine when a makeup can occur. If you know that you will be absent, contact Mr. Sabor in advance.

# Standardized Testing

The Missouri Department of Elementary and Secondary Education requires all students to take the **Algebra I EOC** (End-of-Course) Exam before their high school graduation. St. Louis Public Schools' Algebra 150 course is taught with the presumption that all students will take the Algebra I EOC in the spring.

Furthermore, college admissions consider student data from standardized tests such as the **ACT** and **SAT I**. Students in the Class of 2028 will typically take one or both of these exams during the 2027 calendar year. Both of these exams include math sections where Algebra I is a primary component. In order to prepare students for these assessments, relevant questions from these exams will be used in models and assignments throughout the course.

National mathematics competitions are opportunities for students to distinguish themselves in mathematics. Interested students are encouraged to explore contests such as the American Mathematics Contests (**AMC**), sponsored by the Mathematical Association of America (MAA).

Please note that while math tests are an integral component of an American K-12 mathematical education, they do not represent the pinnacle of mathematical knowledge nor achievement. Mathematicians spend their research hours conjecturing, wondering, reading, discussing, and proving. The mark of astounding mathematics is insight supported by exacting logic. Tests can reward these skills, but they also reward computational speed, focus, and the ability to remain calm under pressure. Students and families are encouraged to view any test result as a snapshot of a student's knowledge on a specific topic in that point in time, not as a measurement of self-worth. Treating a poor score as a call to change without being an indictment of the student is a nuanced and necessary attitude for productive and healthy mathematical growth.

# Classroom Expectations

*In Mr. Sabor's classroom, great ideas always win.*

Below you will find Mr. Sabor's vision for learning. If you have a great idea of how to improve upon class, contact him respectfully outside of class time. Not all suggestions will be implemented, as a classroom must balance and respect the needs of all students, their families, the instructor, the school, the district, the state, and the content.

## WELLNESS

Be safe. Keep your family and loved ones safe. Follow current safety protocols. Email Mr. Sabor ( <a href="mailto:william.sabor@slps.org">william.sabor@slps.org</a> ) if you have to be absent or have concerns about workload. Ask for help.	Your health and safety are more important than your education. We can reschedule parts of your education when important life events happen. It is mature and respectful to ask for help when you think you might need it.
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## TRUTH

Do not make statements that are false, including intentionally getting academic questions wrong or showing someone else's work as your own.	Someone might believe the lie. If people know you have lied before, they are less likely to believe you, even when you are telling the truth. Lies slow down productive conversations. Cheating reduces learning. Cheating causes people to get expelled from college and lose their jobs in the workforce.
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## PROFESSIONALISM

Follow dress code and leave the space better than you found it. Help clean messes that have been accidentally abandoned. Use polite word choice, tone, and intention. Use the correct voice level for the situation (forte only if presenting to the class, mezzo forte in group conversations or a teacher-student conversation in front of the whole class, piano or mezzo piano in one-on-one conversations). Attempt to use correct grammar and pronunciation. Do not publicly display romantic affection.	These are rules common to professional settings. Many people prefer polite language, especially Mr. Sabor. Using an incorrect voice level can prevent people from properly hearing each other. Failing to do any of these things can communicate disrespect. Many employers will judge potential employees negatively for failing to meet these expectations.
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## PRESENT

Be in the classroom for 100% of the class time scheduled to the best of your ability. Enter early and wait for the words, “you are dismissed” before leaving. Minimize the number of restroom, water, counselor, etc. breaks that you take as well as their length. Remain awake and focused on the task at hand.	Whenever you are out of the classroom, you are missing an opportunity to learn. Punctuality communicates respect. Loud, frequent, or mistimed entry or exit can distract the rest of the class.
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## PERSISTENCE

Try your very best when attempting any problem assigned to you. Read the question and pay attention to details. Comprehend the question by identifying vocabulary words and drawing a diagram when appropriate. Develop questions to ask that are as specific as possible. Ask those questions if you remain stuck, and write your questions down if no one assists you immediately. Refer back to your notes. Show your work legibly and include units in your answer. If there is a graph as part of your answer, use a ruler and label your axes. If you are asked to explain something, write in complete sentences.	Math is not a spectator sport. You must do math to learn math. With enough time, effort, and support, everyone can confidently understand Algebra. The less you understand, the harder you will need to work. A strong work ethic might be the most important thing you can learn in an Algebra class.
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## EFFICIENCY

Use every possible moment during live instruction to maximize your Algebra learning. Stay awake, take notes, ask questions, listen to directions, read directions, follow directions promptly, try all of the questions to the best of your ability, get feedback on your work, and use feedback to make improvements. Track the speaker, board, or paper. Do not create, encourage, or pay attention to distractions.	Efficiency maximizes results. It is disrespectful of everyone else’s time (students and staff) to ignore that a classroom is a learning environment.
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## SUPPORT

Encourage others to do the right thing quietly and politely. Respond to peer questions with dignity and without judgment. Explain process without giving answers. If another student makes an academic or ethical error, support them emotionally without agreeing with the error.	A classroom of 25 instructors and learners can achieve far more than a classroom of 1 instructor and 24 learners. Learning requires that people make mistakes and learn from the consequences. Good friends are sympathetic to the emotions of their friends and also wish success for their friends.
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## PREPARED

Every day, the first time you walk into class, you should bring your own pencils, organized binder, old work, blank graph paper, charged laptop, charger, and passport.	Internet access and power supply are necessary to access some class activities. Your teachers do not have the time or money to provide new materials for you on a regular basis. Disorganized or uncomfortable workspaces can distract from productivity. Keeping track of your own things is a sign of maturity and increases retention of knowledge. Having your materials organized increases retention of knowledge.
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