

# Mathematics of Finance

## Key Instructional Activities

Mathematics of Finance is offered as a fourth-year option, or in some cases as a math elective. This course is intended to give students real-world mathematics experience in the areas of personal finance, employment and taxes, investments, business, and housing. That said, any student who is entering into adulthood could benefit from the important content found in this course. This course is intended to be rich in real-world experiences and includes opportunities to model adult behaviors in finance.

Mathematics of Finance may be used as a fourth math course toward high school graduation (along with Algebra 1, Geometry, and Algebra 2) but Math of Finance is not accepted by the University System of Georgia or by NCAA as a high-rigor fourth-course offering.

Here's a brief snapshot of some of the work students will be doing in these areas:

- Students will investigate employment, living expenses, bank accounts, and personal credit.
- Students learn about gambling, probability, and risk management and the roles that probability and statistics play in these mathematical concepts and in their own lives.
- Students will set life goals and investigate the income, credit, and employment necessary to achieve these goals.
- Students will examine enterprise and business models involved in entrepreneurship and the pros and cons of owning a business.



What resources are available for students and parents?

<https://hcbemath.weebly.com/>



- ✓ Online Math Textbook
- ✓ Parent Portal
- ✓ Overview of Units and Pacing
- ✓ The Learn Button!
- ✓ Mathematics of Finance does not have its own Weebly page, but when math help is needed, exploring the other courses can be helpful.



What is the Learn Button on the Weebly Site? *Link to Georgia Virtual School Modules for instructional videos, examples, and practice by unit.*

# Mathematics of Finance Course Overview

## Unit 1: Personal Finance

### Expected Dates: August to October

This unit explores the “beauty and power of finance.” It will cover making smart decisions when looking at your money situation—both as a professional and as an individual. More than just knowing what to do with money is understanding what it is, how it works, and what it means for personal and professional life. This interactive unit will help students know how to (and in some cases, actually) set up accounts, budget, understand healthy income and spending habits.

## Unit 2: Employment and Taxes

### Expected Dates: October to November

This unit develops an understanding of every aspect of employment, from developing a resume, to understanding the education and training necessary to land one’s “dream job,” to interviewing. Students may discover their aptitudes for certain jobs through personality inventories. The unit then progresses into what students should expect from employment, from income to taxes, social security, FICA, and retirement. Students will discuss unemployment, Medicaid, WIC, and food stamps. Students use geometry to complete an accurate pie chart of how their paychecks are spent. Students will fill out W-2’s, W-4’s, and Turbo Tax returns.

## Unit 3: Gambling, Probability, and Risk Management

### Expected Dates: November to December

In this unit, students continue their study of finance by looking at gambling, the lottery, the psychology used to entice people into risk-taking with their money. On the other hand, students will examine actuarial science results for car, life, and health insurance. Students will investigate the Monte Carlo method and the Law of Large Numbers.

## Unit 4: Investments and the Stock Market

### Expected Dates: January to March

Students will discuss the benefits and risks of owning a part of a public company through stocks. They will learn stock vocabulary used colloquially such as growth, value, Blue Chip, stock, stock holder, common stock, preferred stock, dividend, stock value, explanatory variable, response variable, value, and diversification. Students calculate EPS (earnings per share) and P/E ratios. Using the Stock Market Game, students will “invest” for a period of time and watch the effect of the market upon their investments. Students will learn the value of diversification. Students will analyze various funds and compare the investment strategies of each.

## Unit 5: Enterprise and Business Models

### Expected Dates: April

Students will look at the expenses involved in owning their own businesses, and may experience simulations of business owning to reinforce these concepts. These may include certain licensures and permits. Students may build businesses of their own and investigate existing businesses. Students may create inventions for products or services and “pitch” them, Shark-Tank style, to the class. Students are encouraged to finalize the learning experiences from this unit to report (through presentation) sales, profit, and loss.

## Unit 6: Housing and Auto

### Expected Dates: Late April to End of School Year

In this unit, student simulations in finance could include building a house, buying land, selling a house, applying for a mortgage or car payment, calculating payments, and debating various types of mortgages and loans. Students can compare and contrast renting vs. owning and living in one city vs. another. Students can track interest rates and relate them to the current economy. The unit examines The American Dream and what that means financially to achieve the dream of home and auto ownership.

## Helpful Tips for Parents and Guardians

Believe that every child can be successful in math. It takes good teaching, coaching, encouragement and practice.

### *Partnering with your child's teacher*

- Get to know your child's math teacher! Your child will thank you (someday) for being involved in his or her learning. Also – know about the online resources that are available!
- Don't be afraid to reach out to your child's teacher—you are an important part of your child's education. Ask to see a sample of your child's work or bring a sample with you.
- Talk with your child's teacher about difficulties he/she may be experiencing. When teachers and parents work together, children benefit.
- Ask the teacher questions like:
  - Where is my child excelling? How can I support this success?
  - What do you think is giving my child the most trouble? How can I help my child improve in this area?
  - What can I do to help my child with upcoming work?

### *Helping your child learn outside of school*

- Talk about math in a positive way. A positive attitude about math is infectious. Encourage your child to stick with it whenever a problem seems difficult. This will help your child see that everyone can learn math.
- Encourage persistence. Some problems take time to solve. Praise your child when he or she makes an effort, and share in the excitement when he or she solves a problem or understands something for the first time
- Encourage your child to experiment with different approaches to mathematics. There is often more than one way to solve a math problem.
- Encourage your child to talk about and show a math problem in a way that makes sense
- When your child is solving math problems ask questions such as: Why did you...? What can you do next? Do you see any patterns? Does the answer make sense? How do you know? This helps to encourage thinking about mathematics.
- Connect math to everyday life and help your child understand how math influences them
- Play family math games together that add excitement such as checkers, junior monopoly, math bingo and uno.
- Computers + math = fun! There are great computer math games available on the internet that you can discover with your child.