Financial Life Cycle Mathematics

Financial Life Cycle Mathematics (FiCycle) provides a theoretically grounded introduction to finance for high school students. It navigates the financial calculations and decisions a person must make over the course of a lifetime (the financial lifecycle of an individual).

The course unifies the material around two key principles: transferring consumption across time and managing uncertainty. It also presents the mathematical concepts underlying these principles in a systematic manner.

- We believe that teaching students the math underlying financial instruments will better position them to make good financial decisions in the future.
- We believe that showing how algebra, probability and statistics can be used to evaluate financial problems will raise students' engagement with mathematics.
- We believe that students will be able to relate to the financial decisions facing older relatives, better than looking 20 or 30 years into their own future.

The course contains five units and three alternative units:

- **Unit 1: Financial Statements** – Students learn about wealth by creating income statements, balance sheets and budgets. This incorporates the mathematics of spreadsheets and a review of Algebra I.
- **Unit 2: Earning Interest** – Students learn how transferring money to the future increases value through compounding. This incorporates the mathematics of exponents, exponentials and logarithms.
- **Unit 3: Regular Payments** – Students learn the math underlying regular cash flows such as mortgages and retirement savings. This incorporates the mathematics of sequences, series and limits.
- **Unit 4: Insurance and Expected Value** – Students are introduced to risk and making decisions in the face of uncertainty. This incorporates the mathematics of probability and expected value.
- **Unit 5: Stocks and Rick** – Students learn about the stock market, with a focus on the efficient market hypothesis and the statistics related to diversified and systemic risk. This incorporates the mathematics of correlation and normal distributions.
- **Alternative Unit: The Role of Government** – Students gain an understanding of the government's role in shaping the environment in which individuals make financial decisions. This involves applying mathematics to real-world situations.
- **Alternative Unit: Complex numbers and trigonometric functions of the unit circle** – Students learn complex numbers and trigonometric functions of the unit circle. This builds on the mathematics of compound interest to develop functions of complex numbers on the unit circle.
- **Alternative Unit: Advanced Extensions** - Students investigate more advanced mathematical models of the financial topics discussed in the previous five units. This may provide advanced students with a strong foundation to go on to a first course in calculus.

Contact us: *info@ficycle.org*