

MATH 3400 Theory of Interest

TU/TR 4:00-5:15pm | Dr. Fabio Vitor

Prerequisite: MATH 1970 or permission of instructor

Congratulations!!! You have won a cash prize! (not really, but let assume this is true 😊) You have two payment options:

- (A) receive \$10,000 now or
- (B) receive \$10,000 in three years.

Which option would you choose? The answer depends on your understanding of the time value of money. By receiving \$10,000 today, you are poised to increase the future value of your money by investing and gaining interest over a period of time. If you choose to receive \$10,000 three years from now, you do not have time on your side, and the payment received in three years would be your future value. That is, if you are choosing option (A), your future value will be \$10,000 plus any interest acquired over the three years. The future value for option (B), on the other hand, would only be \$10,000.

Time Value of Money Formula

$$\text{Future Value of Money} = PV \times \left(1 + \frac{i}{n}\right)^{(n \times t)}$$


$$\text{Present Value of Money} = \frac{FV}{\left(1 + \frac{i}{n}\right)^{(n \times t)}}$$




This course will study the measurement of interest, annuities, amortization schedules, and other financial mathematical topics. Those who understand interest theory can be informed borrowers, making intelligent choices about mortgages and other loans, and they can also be wise investors. This course is designed to those interested in exploring actuarial careers and also those enthusiastic to understand money and its value. By the way, we will talk about money all the time in this course. (fun, right?)

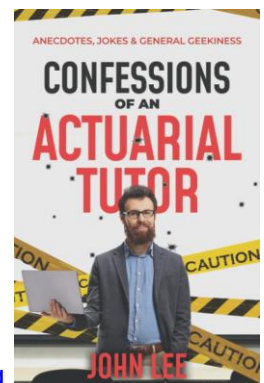
In this course, you will learn about time value of money and how to make smart financial decisions.

SIGN UP FOR THIS COURSE TO LEARN MORE!

Some topics in this course may include:

- The growth of money (simple interest, compound interest, discount functions, inflation)
- Equations of value and yield rates (single deposit, multiple contributions)
- Annuities (annuities-immediate vs. due, payments in geometric progression vs. arithmetic progression)
- Annuities with different payments and conversion periods
- Loan repayment (amortized loans and amortization schedules)
- Bonds (valuing a bond after its date of issue, selling a bond after its date of issue)
- Stocks and financial markets (brokerage accounts, buying stock with borrowed money, selling borrowed stocks)
- Arbitrage, term structure of interest rates, and derivatives
- Interest rate sensitivity (duration, convexity, price approximation)
- Determinants of interest rate (supply and demand of loans, default risk, inflation risk)

Do you need something to read over the summer? Check this <https://amzn.to/3DcZ1Vq>



For More Information:

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