



Financial Literacy with Mr. 401(k)
Spring Term 2026
May 13, 2026

Time and Money

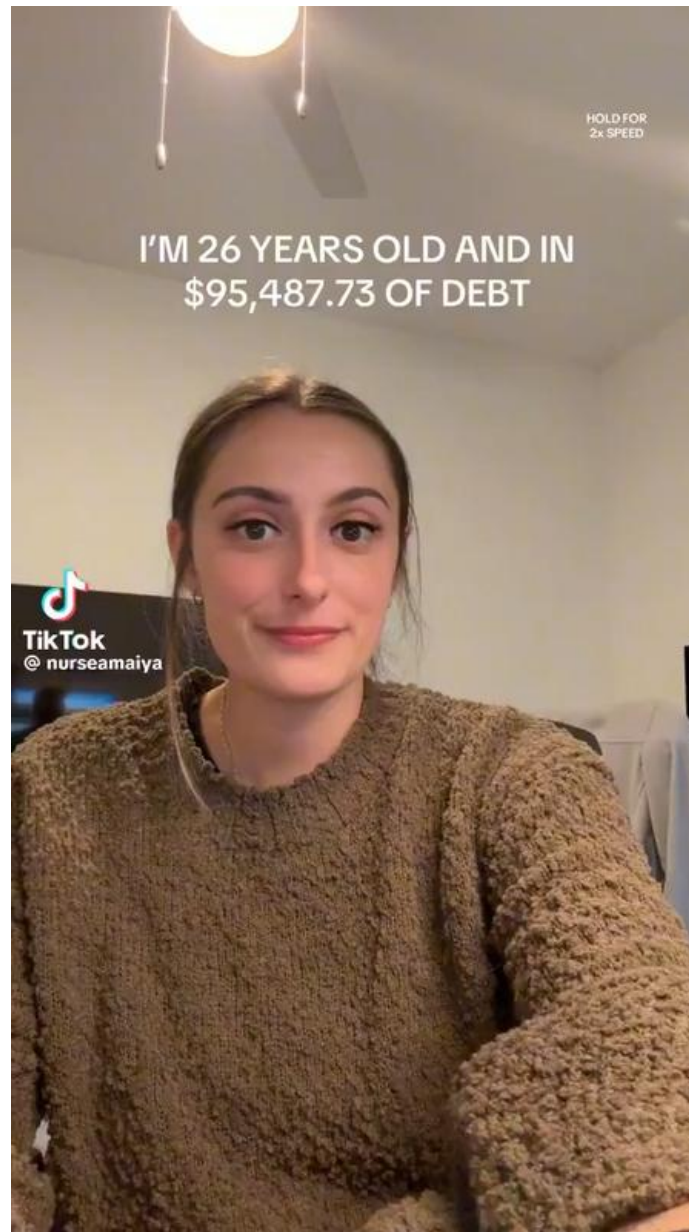
Class 25: Is College a Smart Investment? & Business Plan Project



Real Example: \$95,487.73 in Debt at Age 26

Listen for:

1. The total debt
2. The choices that added up
3. Tuition vs. living costs



What went wrong?

- The debt total was bigger than she realized.
- It came from several sources: student loans, credit cards, school decisions, and living expenses.
- Big lesson: borrowing for college can include more than tuition (e.g. housing, food, transportation, and lifestyle choices).



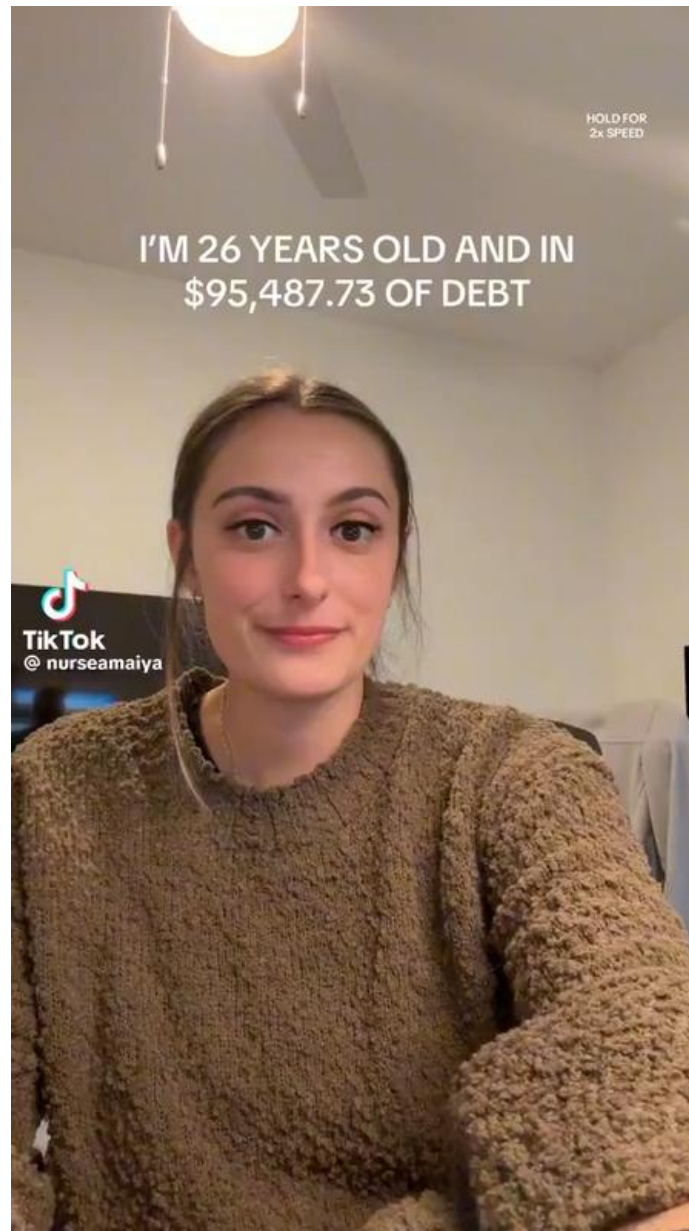
Class Discussion

*Why might
borrowed money
feel “fake” at first?
What could make it
feel more real
before borrowing?*

What She Learned About Debt

Listen for:

1. Why interest matters
2. What she wishes she knew
3. What goals debt can delay



What can we learn?

- Interest rates change the real cost of borrowing. Private loans can be much more expensive than they first appear.
- Borrowed money may feel “fake,” but repayment becomes very real later.
- A plan matters: know the cost, borrow only what you need, and understand how repayment affects future goals.

Practical Application



Jane borrowed \$100,000 in student loans to pay for college. She recently graduated and now has a full-time job. Jane can afford to pay \$600 per month toward her student loans. Her loans have a fixed annual interest rate of 6%. About how long will it take Jane to pay off the debt?

Recap: How Many Payments Will It Take?

Solving an annuity for the total number of payment periods (N)

N — GROWING TO A SAVINGS GOAL

How many payments until I reach a future amount?

$$N = \frac{\ln \left(\frac{FV \cdot r/n + PMT}{PMT} \right)}{\ln \left(1 + r/n \right)}$$

N — PAYING DOWN A BALANCE

How many payments until a debt is gone?

$$N = \frac{\ln \left(\frac{PMT}{PMT - PV \cdot r/n} \right)}{\ln \left(1 + r/n \right)}$$

FV Future Value = Ending amount

PV Present Value = Starting amount

PMT Payment = Payment amount each period

r Interest Rate = Annual rate as a decimal

n Payment Frequency = Periods per year

💡 **ln** is the natural logarithm to unwind exponents. A spreadsheet =NPER() function finds the # of payments.

Practical Application

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Practical Application



If Jane graduated from college at age 22 and paid \$600 per month, she would still be paying her student loans until about age 52. What if she increased her monthly payment from \$600 to \$1,000?

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Practical Application



What if Jane had chosen a different path for college and graduated with no debt? Instead of paying \$1,000 per month toward student loans, suppose she invested \$1,000 per month for 12 years and earned a 10% annual return. How much money could Jane have at the end of those 12 years?

Recap: How Much Will My Regular Savings Grow?

Future Value of an Ordinary Annuity Formula

$$FV = PMT \left(\frac{(1 + r/n)^{nt} - 1}{r/n} \right)$$

WHAT EACH VARIABLE MEANS

FV Future Value = Ending amount

PMT Payment = Amount deposited each period

r Interest Rate = Annual rate as a decimal

n Payment Frequency = Periods per year

t Time = Years you keep contributing

WHAT “PMT” LOOKS LIKE IN PRACTICE

Even small, regular deposits add up over time

PMT = \$15/wk → Allowance saving

PMT = \$100/mo → First-job investing

PMT = \$250/mo → Roth IRA contributions

PMT = \$500/mo → 401(k) contributions

💡 Each contribution gets time to compound, and the earliest deposits grow the most.

Practical Application

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$$FV = PMT \cdot \left(\frac{\left(1 + \frac{r}{n}\right)^{n \cdot t} - 1}{\frac{r}{n}} \right) = 1000 \cdot \left(\frac{\left(1 + \frac{.10}{12}\right)^{12 \cdot 12} - 1}{\frac{.10}{12}} \right)$$

Practical Application

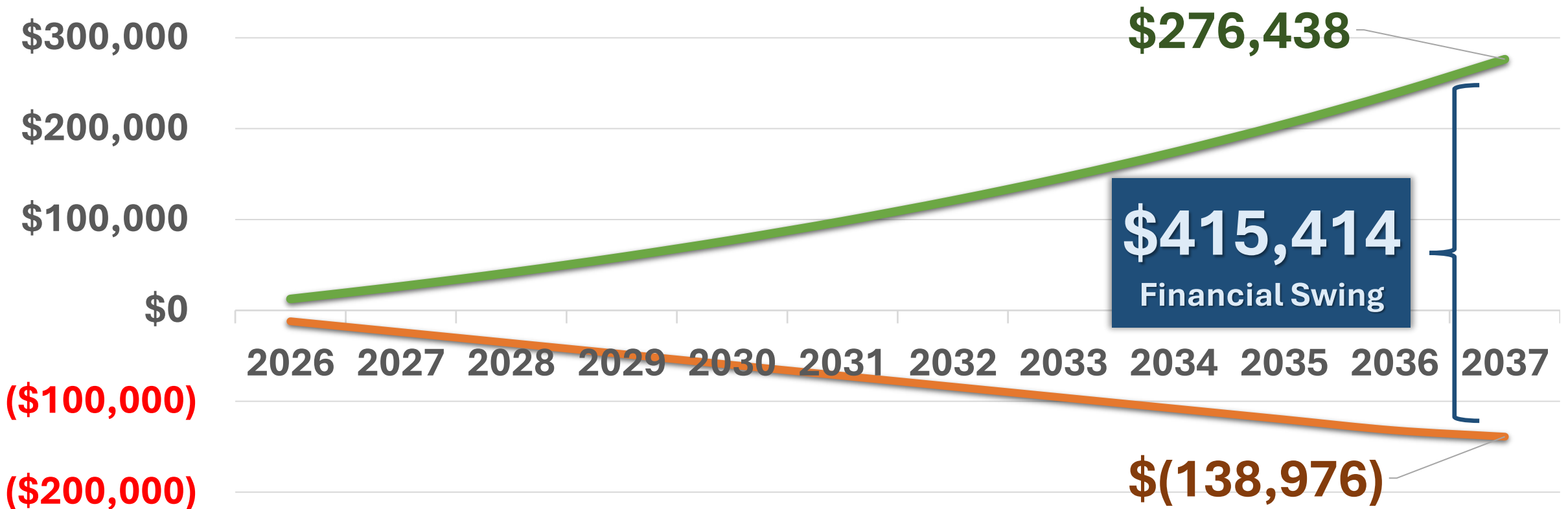
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Visualizing the Financial Swing

What might Jane have otherwise done with her money?

- Cumulative cashflow to pay off student loans
- \$1000 per month at 10% investment returns compounded monthly



Is College a Smart Investment?

What to consider before making this big financial decision

The Math

Bachelor's degree holders have about **\$1.2M higher median lifetime earnings** than high school graduates. But high student loan debt can mean decades of payments. The question is: **which college, which degree, and at what cost?**

The Changing Landscape

AI and technology are changing work. Employers increasingly value **skills**, not just degrees. Other paths are growing (e.g., **certificates, apprenticeships, entrepreneurship, and community college programs**).

Questions Worth Asking

- What career do I want?
- Does it require a degree?
- What will it **actually cost**?
- **What could I earn** after graduation?
- Are there **faster or cheaper paths**?

The Bottom Line

College can be a smart investment. But, smart investors **run the numbers**. The **variables** matter more than the formula.

 This decision is closer than it seems. **Start thinking like an investor. Avoid being a follower.**



Three Key Takeaways

1. Annuity formulas reveal the costs of borrowing, and how long it takes to repay student loans and other debt.
2. You now have the tools answer whether college is worth it by comparing the costs, expected future earnings, time requirements alternatives, and what a college degree buys you.
3. AI, robotics, and other emerging technologies will materially shape the future like never before.



Where to Learn More

- [College Scorecard](#) from the U.S. Department of Education
- [Occupational Outlook Handbook \(e.g. salary data, growth projections & education requirements\)](#) from the Bureau of Labor Statistics
- [Economics and Finance Courses](#) from Khan Academy.



Business Plan Project

Practical Application



1. Business Identity

- What is your business name?
- Design a logo for your business. *(Optional but encouraged!)*
- What is your business's mission? *(What problem does it solve? Why does it exist?)*
- What is your business's vision? *(Where do you see your business in the future?)*

2. Products & Services

- What products and/or services does your business offer?
- What makes your product or service valuable to customers? *(What problem does it solve or what needs or wants does it fulfill?)*

2. Products & Services (continued)

- How does your business earn money? *(Sales, subscriptions, services, etc.)*
- How much will you charge for your products or services? How did you decide on these prices?
- How many products or services do you need to sell to cover your costs? *(Break-even point)*

3. Target Market & Customers

- Who are your business's target customers? *(Age, interests, location, etc.)*
- Where will customers find your business? *(Online, in a store, at events, etc.)*

Practical Application



4. Costs & Expenses

- What are the costs to start your business? (*Supplies, materials, website, etc.*)
- Where will your business's startup costs come from? (*Savings, investors, fundraising, etc.*)
- What are your business's ongoing expenses? (*Rent, supplies, marketing, employee wages, etc.*)

5. Competition & Differentiation

- Who are your main competitor(s)?
- What makes your business different from the competition?
- Why would customers choose your business over a competitor?

6. Marketing & Customer Engagement

- How will your business promote its products and/or services? (*Social media, flyers, ads, word of mouth, etc.*)
- How will you attract new customers and keep them coming back? (*Special deals, loyalty programs, great customer service, etc.*)

7. Team & Responsibilities

- Who are the members of your business team?
- What roles and responsibilities will each team member have? (*Who is in charge of marketing, finances, operations, etc.?*)

Practical Application



8. Challenges & Risks

- What are some possible challenges your business might face? (*Competition, cost overruns, customer interest, etc.*)
- How will your business overcome these challenges? (*Backup plans, strategies, adjustments, etc.*)

9. Business Pitch

- Write a short “elevator pitch” that describes your business to potential customers. (*This should be a persuasive and engaging summary.*)

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in <https://linkedin.com/in/petrosk>

Learn it. Earn it. Own it. Grow it.

Teaching young people how
money really works

**Financial Literacy with
Mr. 401(k)**

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