

MATH 170  
FINANCIAL MATH REPORT  
SPRING 2015

**Due: May 1, 2015, 5:00PM (-20% if emailed after that time until 10pm, 0% after that)**

Must be emailed to [melanie.laffin@gmail.com](mailto:melanie.laffin@gmail.com)

No paper submissions will be accepted.

*Instructions:* You are to write a paper addressing the questions below. There are many correct answers and I am just checking to see that you researched your solutions and gave thought to why you choose one plan over the other. Grammar doesn't need to be perfect but your papers must be readable. If you are asked to calculate something explain how you calculated it, or state what formula you are using. If you are using an online calculator, be sure to cite it. Finally, all papers will be checked for plagiarism. If your paper is too similar to another student's or is plagiarized, you will receive a zero and will be referred to the Office of Academic Integrity.

**PART I: INVESTMENTS** [100 points]

1. You have \$10,000 to invest in the stock market. Say you wanted to buy stocks in 2 companies (of your choosing) on April 1, 2015.
  - a. How many shares would you have been able to buy on that date from both companies at closing? (Be sure to list the companies you are using and their stock market "ID").
  - b. Now that you have a certain number of shares, what are they worth today? (Be sure to note the day you are checking.)
  - c. What were your shares worth a year ago? (Again, note the date.)
2. Now you have \$10,000 you want to put into some sort of savings account or CD.
  - a. Find a savings account or CD from a national bank (Wells Fargo, Chase, TD, Bank of America, etc.) and state the interest rate and how often interest is compounded. Calculate the future value of your savings in a year from now. Be sure to subtract monthly service fees if they apply. Feel free to use your bank, if you wish.
  - b. Now do the same thing but for a local bank or credit union. Feel free to use your bank, if you wish.
  - c. Which of the two banks offers a "better" deal for you? State your reasons why.
3. Now thinking back to the previous two questions, do you believe you would have made more money in the next year by putting your \$10,000 into the stock market (your two companies specifically), into a savings account at a bank (your two banks, specifically) or a mix of the two? Explain your choices.
4. Again, thinking back to the first two questions, which do you think is better for a long term investment, i.e. for 20 or 30 years. Explain your choice.
5. Give the definition of a 401K account. List one or two benefits and one or two

drawbacks of a 401K.

6. Give the definition of an IRA account. List one or two benefits and one or two drawbacks of the IRA account.
7. Compare and contrast a 401K with an IRA. Is there a time that one is better than another? Be specific.
8. Without revealing too much personal information, come up with a budget allocation for your money for the next month. You can make up that you make a certain amount a month, and then give a percentage to different aspects like car, food, entertainment, emergency cash, etc. Try to be as thorough as possible.
9. Calculate how much money you should have saved in an emergency fund.
10. Your grandmother dies and leaves you \$50,000. You love your grandmother and want to honor her by being careful with the money. Trying to be as fiscally responsible as possible, what do you do with the money?

## **PART II: DEBTS AND LOANS [60 points]**

1. Find a credit card and list its benefits and information (you can use your credit card if you'd like). Calculate how long it would take to pay off a \$5,000 balance if you only pay the minimum payment each month. Then, calculate how long it would take to pay off the balance if you paid 50 dollars a month extra than the minimum payment. If you don't know the minimum payment, just calculate it to be the 1.5 times the APR.
2. Give a common misconception about credit cards and explain why it is incorrect.
3. You have \$6,000 in credit card debt spread over three credit cards. Card A has an APR of 7% with a balance of 3,200, Card B has an APR of 18% with a balance of 1,000 and Card C has an APR with the remaining balance. How would you go about paying these credit cards?
4. You have a student loan of \$22,826 and are being charged 6% interest.
  - a. If you want to pay off your loan in 5 years, what must your monthly payment be?
  - b. If you want to pay off your loan in 10 years, what must your monthly payment be?
  - c. If you want to spend \$200 a month on paying off your loan, how long will it take you to pay off your loan?
5. You are looking for a new car.
  - a. Find a car you'd enjoy driving and give the sticker price for that car. (If it is not a new car, then use the "Blue Book" value).
  - b. You can get a car loan from Bank of America for a new car with yearly interest of 2.24% up to 60 months. You also have the option of putting it on your Wells Fargo Cash Back Card where you have 0% yearly interest for the first 15 months, then 12.15% annual interest after that. If you plan to pay your car off in monthly installments in 4 years, which is the better "loan" for you? Explain why.
  - c. What are some other financial considerations you have to make when buying a new car?

6. You have a hospital bill of \$4,300. If you pay it off right away, the hospital will give you a 10% discount. However, you do not have the cash at the moment. What are your options to pay off this hospital bill.

**PART III: BIBLIOGRAPHY** [10 points]

You don't need a formal bibliography, just list all the links you used at the end of the page along with a short description so I can check the math you used, as well as the date you accessed the page.

For example,

Wells Fargo's information on CDs/Savings: [https://www.wellsfargo.com/savings\\_cds/](https://www.wellsfargo.com/savings_cds/)

Accessed on 3/2/2014.