

Math 131 *Finite Math*
Fall 2004
Chapter 5: Mathematics of Finance
Chapter Project

Income: _____ **Credit:** _____

Purpose: The purpose of this project is two-fold. First, it will help you to explore the techniques involved in working with simple interest, compound interest, and annuities. Second, it will also give you a look at setting up a budget, home mortgages and the importance of credit.

Overview: In this project, you will build a partial household budget, including a mortgage payment, car payment, and payments toward furniture bought on credit.

Directions:

- Your income and credit level are written above.
- Compute your monthly income before and after taxes. If your yearly salary is above \$60,000 your income tax is 30% of your monthly income. If your salary is between \$40,000 and \$60,000 your income tax is 25%. If you salary is below \$40,000 your income tax is 20%.
- Compute how much you can afford to pay toward a mortgage each month, using the following guidelines:
 - Your mortgage can be at most 28% of your monthly income before taxes. This is a standard measurement used by financial institutions when they are deciding to provide a mortgage.
 - Your mortgage can be for either 15 or 30 years. This is your decision.
 - Your interest rate for your mortgage is 5.8% if you have Good credit, 8.2% if you have Medium credit, and 12.3% if you have Bad credit. All rates are compound interest.
- Decide how much you can afford to pay for your house. Remember that you must pay Realtor and mortgage fees. These total \$3,000 in addition to the price of your house.
- Use Internet, newspapers or other sources to find a house in your range. If you can only afford less than \$90,000 toward a house, you may decide to rent and you must find yourself an apartment or house to rent. Find your monthly payments for either the mortgage or rent.
- You will now need to decide how much to spend on your car and furniture. Use the following guidelines:
 - If you have Good credit your car financing will be at 1.9% simple interest. If you have medium credit your financing will be 5.2% simple interest, and if you have Bad credit yours will be 12.3%. All financing comes at your choice of 36, 48, or 60 months.
 - You have four choices for furniture; the superior line at \$8500, the high line at \$6300, the comfortable line at \$4200, and the standard line at \$2000.
 - If you have Good credit, Furniture 'R Us is going to give 0% financing. If you have Medium credit they will provide financing at 7.4% and those with Bad credit will have to pay 18.7% both of which are compound interest rates. Furniture financing is provided for your choice of 1, 2 or 3 years.
 - **IMPORTANT** In order for your mortgage company to approve you, your total debt can not exceed 36% of your monthly income before taxes. This is a standard measure for finance companies. Total debt includes your mortgage, car and furniture but does not include rent.

- Find a car in your price range. Remember to include any extras to the car, warranties and car packages in the price of your car. Many car companies have websites where you can build your car and they break down this information. Compute your monthly payments.
- Compute your monthly budget. Remember all payments come out of your salary after taxes. Find how much you have left in your budget for water, electricity, cable, car insurance, and food, not to mention your entertainment costs.
- Write up your project in a paper. Remember to include any calculations, especially those done on your calculator, as I have outlined in class. Also, include detailed descriptions of your car and house. If possible include pictures. Also helpful will be print outs of web forms such as those on car company websites and for your house. For your house, if you don't have a picture, give description of the yard, number of stories, bedrooms, bathrooms, square footage, etc... If you found your house or car in newspaper or other publication include a copy.
- Remember, the more creative the better!
- Include in your paper, a discussion of your budget. Do you have enough money for food? What about cable? Internet connection costs? What about entertainment money? Do you have enough to go to the movies or a shopping spree at the mall? Would you be comfortable living with this budget? What if you had other debt such as a credit card or a student loan?
- **Getting "Married"** If you would like to work with someone, you may choose to get "married" for this project. However, it will change the assignment slightly. You must follow in addition to the above the following guidelines:
 - You will need to combine your incomes. However, this is done after you take out income taxes. But you do get a break on your income taxes! Each individual in the "couple" can subtract 5% from their income tax (i.e. if you were paying 25% income tax while you were single, being married you only have to pay 20% income tax.)
 - As a couple, you may use the credit rating of which ever partner you choose.
 - Even as a couple with combined income you must still follow the 28% rule for your mortgage and the 36% rule for your total debt.
 - Since you are a working couple with income from both partners, you will need two cars so that both of you can get to work and home each day. Remember, in your paper you will need to provide as much information as possible about your cars (pictures, dealer website information, extras, warranties, ect...)
 - Marriage is 50-50. Both partners must work equally hard on the project. However, you may turn in only one paper.
- **Due Date:** The project is due on Thursday, October 28 at 11:00 AM.