MATH 370. PERSONAL FINANCE PROJECT

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The goal. This paper is designed to make you begin thinking about money and how it will relate to your future job and expenses.

You should write a brief paper in **Latex** answering all of the questions below. You should be sure to write out the calculations you use to come up with your figures. In your paper you should make the answers flow from your considerations and should NOT just list the answers.

0.0.1. *How realistic is this computation?* There are outside elements that you can not know in advance (state of economy, interest rate and inflation rate). Also, you can not know in advance how successful you will be, how many children you will have etc.

In addition to these obvious problems, there are problems with the computation that I have chosen below – it is too simple in various ways. The most obvious omissions are the children and the spouse. While a child would cost you a spouse may share your expanses so this computation assumes that the two may cancel but of course it need not work exactly that way.

So, we quickly see that the computation is not precise. Just as it is stated at the beginning, this is only the first step, we are just starting to think about financial planning.

0.0.2. *Calculation of your savings at the time of the retirement.* You can use web calculators or you can do calculation using differential equations (this is as explained in another text on the web page). Either way, it is paramount that you know what is the information and assumptions used in the computation. (Computation will depend on your assumptions on interest rate and inflation.)

Date: ?

The steps in the project:

1. *Job, residence and salary.*
Think of a job you would like to realistically have after graduation. Also, think of what state you would like to reside in a maybe more precisely if you prefer certain town. Use a resource such as *monster.com* or *careerbuilder* to look up the average salary for this job in the corresponding state.

2. *Taxes and the net income.*
Determine what tax bracket you will be in if you have this salary based on the 2014 tax bracket. Calculate how much you will have to pay in taxes and determine your net income. (Don't worry about other tax deductions.) Determine your monthly net income.

3. *Fixed expenses.*

- *Rent.* Determine how much you will pay in rent per month. For this you have to decide whether you will live alone, ? have a roommate?, live with your parents for a year or so?
- *Utilities.* To determine how much you will pay for utilities you will need to look up the average cost of heat, electricity, cable, internet.
- *Food.* Determine how much you will spend on food per month.
- *Debt.* Determine how much you will spend on servicing your debts per month (student loans, credit cards, credit purchases such as a new car you are planning on buying etc.)
- There are other factors such as health insurance, union dues, etc but you can ignore those.

Now, how much is left each month after the fixed expanses?

4. *Discretionary spending.* Estimate how much you will spend on going out and having fun, travel, hobbies ...

5. *Retirement investment.* The remaining money is what you can save. This is your retirement investment, the money you feel comfortable investing in your retirement.

6. *Retirement strategy.*
Once you have picked the amount you are comfortable saving, you need information to make further some decisions have to be made and for this you will need fitter information.

- Look at what a company in your field generally offers in terms of a retirement package.
  Do they match what you contribute? Is there a maximum contribution?) Do they have a pension? How is the pension calculated?
- Decide how to invest the money (pension, Roth-IRA, 401K, 403b, etc.)
  Possibly you may want to split your contributions among different accounts?

7. *The nominal amount of money at the retirement age.*
Now that you have your monthly investment amount and you have decided where to invest, you should calculate how much money you will have at retirement. You should use the following assumptions:

- You will retire at age 65.
- You will earn an average of 8% interest on your money.

Is that money taxable or not (depends on what type of account you have chosen)?

8. *Money at the retirement age adjusted to today's dollars.* A million dollars 40 years from now will have less buying power then today because of the inflation. Assume the inflation rate of 2%. Calculate how much one dollar is going to be worth when you are 65. Let us call this number the *inflation factor*. Multiply the amount in (6) by the inflation factor to get the worth of your retirement savings value in today's dollars.

9. *Is it enough?* Are you surprised?

10. [This step is not obligatory.] Do you find it reasonable to make some other assumptions on the interest rate and the inflation rate? Why? What answers would your adjusted assumptions produce?