**HW 3**

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EECE 490B

02/13/2018

3-7:

1. Interest = Amount – Principal = $1,200,000 - $1,000,000 = $200,000

Interest Rate (per year) = ($200,000 \* 100)/($1,000,000 \* 15) = 1.33%

1. Value of gift = $1,000,000 \* (1.0133^15) = $1,219,190

3-12:

Sum of Money = (1/((1+0.04)^4)) \* $8,250 = $7,052.13

3-16:

Amount deposited today = $150,000/(1.06^5) = $112,095

3-18:

1. Money = $4,000 \* (1.05)^5 = $5,105
2. Money = $4,000 \* (1.05)^10 = $6,516
3. Money = $4,000 \* (1.05)^20 = $10,613
4. Money = $4,000 \* (1.05)^50 = $45,870
5. Money = $4,000 \* (1.05)^100 = $526,005

3-22:

Money to spend on a motorcycle = $16,000 – ($12,000/(1.02^4)) = $4,909

3-42:

Effective Interest rate = 0.0931 = (1 + i)^4 – 1

I = 0.0225 \* 4 = 9% per year

3-46:

$10,000 = $9,800(1 + i/12)^6

I =4.047%

Effective Annual Interest Rate =( (1 + 0.04047/12)^12) – 1 = 0.0412 = 4.12% compounded monthly

Nominal Annual Interest Rate = ( (1 + 0.0412/12)^12) – 1 = 0.0408 = 4.08% compounded monthly

3-52:

Nominal annual interest rate = 1.75% \* 12 = 21%

Effective interest rate = (e^21%)-1 = 23.37%

3-56:

Money Collected = $12

Money earned per customer = $12 + 6\*1\*(1)/100 = $12.06

Extra money per customer in a year = 6 \* $0.06 = $0.36

Total extra money = $0.36 \* 100,000 = $36,000