MA 162 - Exam #4 Information

This document is intended to give information about the Exam on 12/16/2014.

I will reiterate that this is the first time I have written exams for this course. This means there are not any previous exams that **I have written** to help you study. You may be able to find previous exams that someone else has written, but I can not guarantee that they will cover exactly the same topics or cover topics in the same order we are. Use any exams you find this way with caution.

This list may not be all inclusive and everything on here will not necessarily show up on the exam, but this is a good starting point for your studying. You should not expect the exam to be all problems you've already seen with only the numbers changed. Just like all the other exams I recommend studying the lecture notes, reviewing the homework and recitation materials, and doing extra practice problems from the book to help study.

Exam Format: The exam will consist of several different types of questions. There will be direct problems, direct word problems, and complex word problems. Here is what I mean by each of these types:

(1) Direct Problems (about 50% of the exam) - These will consist of making sure you know how to use the different formulas we have used. Typically this will mean you need to substitute the correct values into the formula and determine which variable is being solved for. Examples:
- Web Assign 5.1: 1-9
- Web Assign 5.2: 1,2
- Web Assign 5.3: 1

(2) Direct Word Problems (about 30% of the exam) - These will be much like the direct problems, except they will be in story form. You will need to be able to determine which formula to use, which parts of the story correspond to which part of the formula, and which variable you are solving for. Examples:
- Web Assign 5.1: 10
- Web Assign 5.2: 3,4
- Web Assign 5.3: 2,3

(3) Complex Word Problems (about 25% of the exam) - These will be problems given in story format where you will need to do several computations and possibly use more than one formula. Examples:
- Web Assign 5.1: 11
- Web Assign 5.2: 5,6
- Web Assign 5.3: 4,5

The exam is two hours long just like all the other exams.

Formulas: You will be given the following formulas on the exam in this exact format. You will not be told what each variable stands for in each equation.

- Compound Interest

$$FV = PV(1+i)^n$$

- Compounded Continuously Interest

$$A = Pe^{rt}$$

- Present Value of Annuity/Loan

$$P = R \left[\frac{1 - (1 + i)^{-n}}{i} \right]$$

- Future Value of Annuity/Loan

$$F = R \left[\frac{(1 + i)^n - 1}{i} \right]$$

- Effective Interest Rate

$$r_{eff} = \left(1 + \frac{r}{m} \right)^m - 1$$

Acceptable Answer Forms: You will be allowed to leave some answers in unsimplified form. Here are a couple of examples:

(1) For direct problems you must give a correct numerical answer to two decimal places along with appropriate work. These may **NOT** be left unsimplified. For word problems, you may leave answers in unsimplified form as described in the next two examples.

(2) How much money will you have after 4 years if you invest \$1000 dollars in a savings account which earns compound interest of 3% APR compounded monthly? You may leave your answer as

$$1000 \left(1 + \frac{.03}{12} \right)^{4*12}$$

Even if you get a numerical answer, you must write the above equation as well. Simply giving a numerical answer will not be sufficient.

(3) You take out a loan for \$10000 which you plan to pay back over the next 4 years by making monthly payments. The loan earns 3% interest per year compounded monthly. How much should your monthly payment be? You may leave your answer as

$$\frac{10000}{\left[\frac{1 - (1 + \frac{.03}{12})^{-48}}{\frac{.03}{12}} \right]}$$

You will **NOT** get full credit if you leave your answer as

$$10000 = R \cdot \left[\frac{1 - (1 + \frac{.03}{12})^{-48}}{\frac{.03}{12}} \right]$$

You could write this equation and then give either the first option or a numerical answer and that will be fine. Essentially, your answer is allowed to be unsimplified as long as there is no more algebra that needs to be done.