<h1 style="text-align:center">Math 112 important concepts to cover</h1>

Unit 1

Sec	Title	Concepts
1-1	The Nature of Mathematical Reasoning	This section is only included so that students learn about inductive vs. deductive reasoning. Students should be able to solve problems like those listed in "Applications in Our World" where a line of reasoning is given and students have to identify if it is deductive or inductive.
2-1	Intro to Set Theory	Covering finite/infinite sets and determining if sets are equal or equivalent is optional. All other concepts are important.
2-2	Subsets and Set Operations	You do not need to cover finding differences of sets or cartesian products of sets. All other concepts are important.
2-3	Using Venn Diagrams to Study Set Operations	This whole section is important.
2-4	Using Sets to Solve Problems	This whole section is important.
2-5	Infinite Sets	Skip this section!
3-1	Statements and Quantifiers	This whole section is important.
3-2	Truth Tables	It is not essential to cover hierarchy of connectives. I always use parentheses to indicate which things should be done first. This seems like boring memorization of an esoteric concept.
3-3	Types of Statements	This whole section is important.
3-4	Logical Arguments	This whole section is important. I make a "formula sheet" that has the common valid argument forms and common fallacies so that they don't have to memorize them, just identify them.
3-5	Euler Circles	This whole section is important. I personally think other textbooks have a less confusing treatment of this topic, so you may want to look elsewhere when you decide how to teach this.

Unit 2

Sec	Title	Concepts
7-1	Percents	They should already know this--SKIP
7-2	Personal Budgeting	Not relevant to our course objectives--SKIP
7-3	Simple Interest	You do not need to cover the Banker's Rule. Everything else is essential. I give them a formula sheet with the simple interest formula on it.
7-4	Compound interest	All content is essential. I give them a formula sheet with the compound interest formula and formula for computing APY (effective interest rate). For future value of an annuity I use the TVM solver on the calculator, not the big ugly formula.
7-5 7-6	Installment Buying Student Loans and Home Buying	Do not need to cover the Actuarial Method, the Rule of 78 or average daily balance. You can do all of these types of problems using the TVM solver on the calculator. Ignore all the tables and ugly formulas and do everything on the calculator. Students should be aware that they will get slightly different answers from the back of the book if they use the TVM solver, so you may want to provide them with revised answers so they can check their work on odd problems. Make sure you do cover amortization schedules (if you make it a short loan they will learn how to round off the final payment…)
7-7	Investing in Stocks and Bonds	Not relevant to our course objectives--SKIP
10-1	Basic Concepts of Probability	This whole section is important.
10-2	The Fundamental Counting Principle and Permutations	This whole section is important.
10-3	Combinations	This whole section is important. They can just do the calculations on their calculator using the Cr function—they do not need to memorize the combination formula.
10-4	Tree Diagrams, Tables, and Sample Spaces	This whole section is important.
10-5	Probabilities Using Permutations and Combinations	This whole section is important.
10-6	Odds and Expectations	Students should know how to change probabilities to odds and vice-versa. They do not need to learn expectation.
10-7	The Addition Rules for Probability	This whole section is important.
10-8	The Multiplication Rules for Conditional Probability	They do not need to learn about conditional probabilities like $P(A|B)$—this is beyond the scope of the class. However, they should intuitively do conditionals using the formula P(A and B) = P(A) * P(B given that A has already occurred).
10-9	The Binomial Distribution	Not relevant to our course objectives--SKIP

Unit 3

Sec	Title	Concepts
11-1	Gathering and Organizing Data	Our textbook previous to this one did not cover the sampling methods (systematic, stratified, etc.) but I suppose there's no harm in teaching this! This whole section is important.
11-2	Picturing Data	Doing this by hand seems enormously silly. I take my students to the computer lab and teach them to make the different chart types in Excel. Email Kate and I'd be happy to share my tutorial handout where they learn to make charts.
11-3	Measures of Average	They do not need to learn the formula for finding the mean for grouped data. Otherwise everything here is important.
11-4	Measures of Variation	This whole section is important.
11-5	Measures of Position	Historically we have taught quartiles but not boxplots. Boxplots are something best drawn with technology anyway, so you may want to skip torturing students with trying to draw them by hand.
11-6	The Normal Distribution	This whole section is important.
11-7	Applications of the Normal Distribution	They have one example titled "Identifying Normally Distributed Data" that doesn't seem relevant. Drawing histograms and finding average and standard deviation or large data sets is not something we want students to concentrate on— all of this can be done with technology. Otherwise this entire section is important.
11-8	Correlation and Regression Analysis	They can do all scatter plots, find r and find the equation of the regression line using their calculator. They should not under any circumstances be trying to use the long formula to find r or the line by hand! This whole section is important.