OFFICIAL SYLLABUS

MATH 111 – MATHEMATICS FOR LIFE

Adopted - Fall 2005 (Committee: Z. Agustin, B. Kniepkamp, S. Rigdon, E. Sewell, S. Staples)

Catalog Description. [Intro.] Focuses on mathematical reasoning and real-life problems. Including: management science, coding, social choice and decision making, size and shape, and modeling.

Textbook: *Using and Understanding Mathematics: A Quantitative Reasoning Approach, Third Edition*, by Jeffrey Bennett and William Briggs.

Week		
1	**CHAPTER 1 THINKING CRITICALLY** **1A – Recognizing Fallacies:** We will begin our study of critical thinking by looking at deceptive arguments, or fallacies.	**1B – Propositions and Truth Values:** We will define and study basic components of logic, including propositions, truth values, and truth tables. We will also consider the logical connectors *and*, *or*, and *if … then.*
2	**1C – Sets and Venn Diagrams:** We will explore how many propositions express relationships between sets, or categories, and how Venn diagrams can help us visualize these relationships.	**CHAPTER 2 APPROACHES TO PROBLEM SOLVING** **2A – The Problem Solving Power of Units:** We will consider the powerful technique of working with units, both to solve problems and to check answers.
3	**2B – Standardized Units: More Problem Solving Power:** We will review standardized units of both the US customary and the metric systems. We will also explore units for problems involving temperature, energy, density, and concentration.	**2C – Problem-Solving Guidelines and Hints:** We will extend the techniques and hints for effective problem solving.
4	**Review for Exam 1**	**EXAM 1**
5	**CHAPTER 3 NUMBERS IN THE REAL WORLD** **3A – Uses and Abuses of Percentages:** Percentages can be surprisingly subtle and difficult to interpret. We will study both uses and abuses of percentages.	**3B – Putting Numbers in Perspective:** Many of the numbers we hear daily are extremely large or small. We will look at several techniques for giving meaning to such numbers.
6	**3C – Dealing with Uncertainty:** We will discuss ways of dealing with the inevitable uncertainty in numbers heard daily in the news. We will also consider the types of errors that affect measured numbers.	**3D – Index Numbers: The CPI and Beyond:** We will study the important role of index numbers in modern life, paying special attention to the Consumer Price Index (CPI).
7	**3E – How Numbers Deceive: Polygraphs, Mammograms, and More:** Numbers may seem straightforward, but they can be deceiving unless we interpret them carefully. We will study several interesting cases that relate to everyday issues.	**Review for Exam 2**
8	**EXAM 2**	**CHAPTER 4 FINANCIAL MANAGEMENT** **4A – The Power of Compounding**: If you put $100 in a piggy bank, many years from now it will still be $100. But if you invest $100 well, it may grow to much more. We'll study how money grows with compound interest.
9	**4B – Savings Plans and Investments:** One way to save is to make regular deposits of, say $100 per month. We'll calculate the future value of such savings plans and study investments such as stocks and bonds.	**4C – Loan Payments, Credit Cards, and Mortgages:** Nearly everyone has some type of loan. We'll calculate monthly payments and explore loan issues.
10	**4D – Income Taxes:** We'll calculate income taxes and discuss a few of the hot political issues that surround them.	**4E – Understanding the Federal Budget:** Everyone's personal finances are ultimately tied to government finances. We'll look at how the federal budget works and study some of the political issues involved.
11	**Review for Exam 3**	**EXAM 3**
12	**CHAPTER 5 STATISTICAL REASONING** **5A – Fundamentals of Statistics:** We'll discuss how statistical studies are conducted, with emphasis on the importance of sampling.	**5B – Should You Believe a Statistical Study?** We'll develop eight useful guidelines for evaluating statistical claims.
13	**5C – Statistical Tables and Graphs:** We'll investigate basic tables and graphs, including frequency tables, bar graphs, pie charts, histograms, and line charts.	**10A – Fundamentals of Geometry:** Geometry plays a vital role in human culture, in everything from art and architecture to advanced engineering. We will study fundamental ideas of geometry, including formulas for finding the perimeter, area, and volume of common objects.
14	**10A – Fundamentals of Geometry: (Continued)**	**12A – Voting: Does the Majority Always Rule?** In elections with more than two candidates, there are several acceptable ways to choose a winner. We will study these methods and see that different methods can lead to different winners.
15	**Review for the comprehensive Final Exam**	**Review for the comprehensive Final Exam**